DOCUMENT RESUME

ED 103 683 CE 003 291

TITLE	Manual for Determining the: Labor Market Availability of Women and Minorities.
INSTITUTION	Department of Health , Education, and Welfare, Washington., D.C. Office of the Secretary.; Office for Civil Rights (DHEW), Washington, D.C.
PUB DATE	[74]
NOTE	83p.
EDRS PRICE	MF-$0.76 HC-$4.43 PLUS POSTAGE
DESCRIPTORS	Civil Rights Legislation; *Data Analysis; Data Bases; Employment Statistics; Equal Opportunities (Jobs); Females; *Information Sources; *Labor Force; Labor Legislation; Labor Market; *Manuals; Minority Groups; Occupational Information; Occupational Surveys; *Research Methodology; Tables (Data)
IDENTIFIERS	*Manpower Research

ABSTRACT

The manual addresses the procedures for conducting a work force analysis as specified by Department of Labor regulations imposing equal employment opportunity requirements for women and minorities. Section one discusses the legal provisions, defines the composition of the labor available for an occupation, and discusses the characteristics of work force analysis data. Section two presents sources of availability data for occupations found in higher education institutions while part three presents sources of availability data for occupations found in health care institutions. Part four discusses obtaining data from Federal, State, and private statistical organizations. A recommended methodology for determining the labor market availability of women and minorities for a single detailed occupation is outlined in section five and evaluation methods are discussed in the concluding section. The appendix includes: useful U. S. census reports; manpower studies and statistical reports; and case studies. (MW)

BEST COPY AVAILABLE

DEC 16 1974

Manual For Determining The:

Labor Market Availability Of Women And Minorities

ED109882

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: CE | HE
In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of the Secretary
Office for Civil Rights

Manual For Determining The:

Labor Market Availability Of Women And Minorities

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of the Secretary

Office for Civil Rights

TABLE OF CONTENTS

Section		Page
I	DATA REQUIREMENTS	1
	Legal Provisions	1
	Definition of Availability	1
	Data Characteristics	4
II	SOURCES OF AVAILABILITY DATA FOR OCCUPATIONS FOUND IN HIGHER EDUCATION INSTITUTIONS	6
III	SOURCES OF AVAILABILITY DATA FOR OCCUPATIONS FOUND IN HEALTH CARE INSTITUTIONS	23
IV	OBTAINING DATA FROM STATISTICAL ORGANIZATIONS	34
	Federal Organizations	34
	State Organizations	36
	Private Organizations	36
V	DETERMINING AVAILABILITY	37
VI	EVALUATION METHODS	45

Appendix		Page
A	Useful U.S. Census Reports	47
B	Manpower Studies and Statistical Reports	50
C	Case Studies	61

TABLE OF CONTENTS (Cont.)

Tables

Number		Page
1	Higher Education Occupations Availability Data Matrix	7
2	Health Care Occupations Availability Data Matrix	24
3	Availability Analysis Work Sheet	44

Figures

Number		Page
1	Labor Market Pool	2
2	Data Sources	35
3	Procedure for Determining the Percentage of Women and Minorities in the Labor Market for a Given Occupation	42

I. DATA REQUIREMENTS

LEGAL PROVISIONS

Executive Order 11246 imposes equal employment opportunity requirements upon federal contractors; implementation of these requirements is covered by the regulations of the Department of Labor (DOL).[1] Part 60-2 of the DOL regulations (referred to as Revised Order No.4) specifies the requirement for contractors to develop written affirmative action programs, defined in subpart B to include a utilization analysis, a work force analysis, and goals and timetables. This handbook addresses the procedures for conducting the work force analysis (paragraph 60-2.11(a)), which is also known as a labor market availability analysis.

In order to perform an availability analysis for a detailed job classification (i.e., occupation) at the contractor's facility, the proportion of women and minorities available for employment in the occupation must be determined. Lists of most of the detailed occupations found at higher education and health care facilities are contained in Sections II and III of this manual.

The availability analysis for each occupation must be conducted in the labor market area in which the contractor could reasonably be expected to recruit. For all executive, administrative, managerial, and professional personnel the labor market area is normally national; for all other occupations the area is usually smaller, or local. This subject is discussed further in Section V.

DEFINITION OF AVAILABILITY

Figure 1 graphically depicts all of the people who may be considered available for employment in a given occupation. These groups are not necessarily mutually exclusive, as many people could fall into more than one category. As shown in Figure 1, the general categories which must be considered when defining the composition of the labor force available for an occupation include individuals who are:

---

[1] 41 Code of Federal Regulations 60.

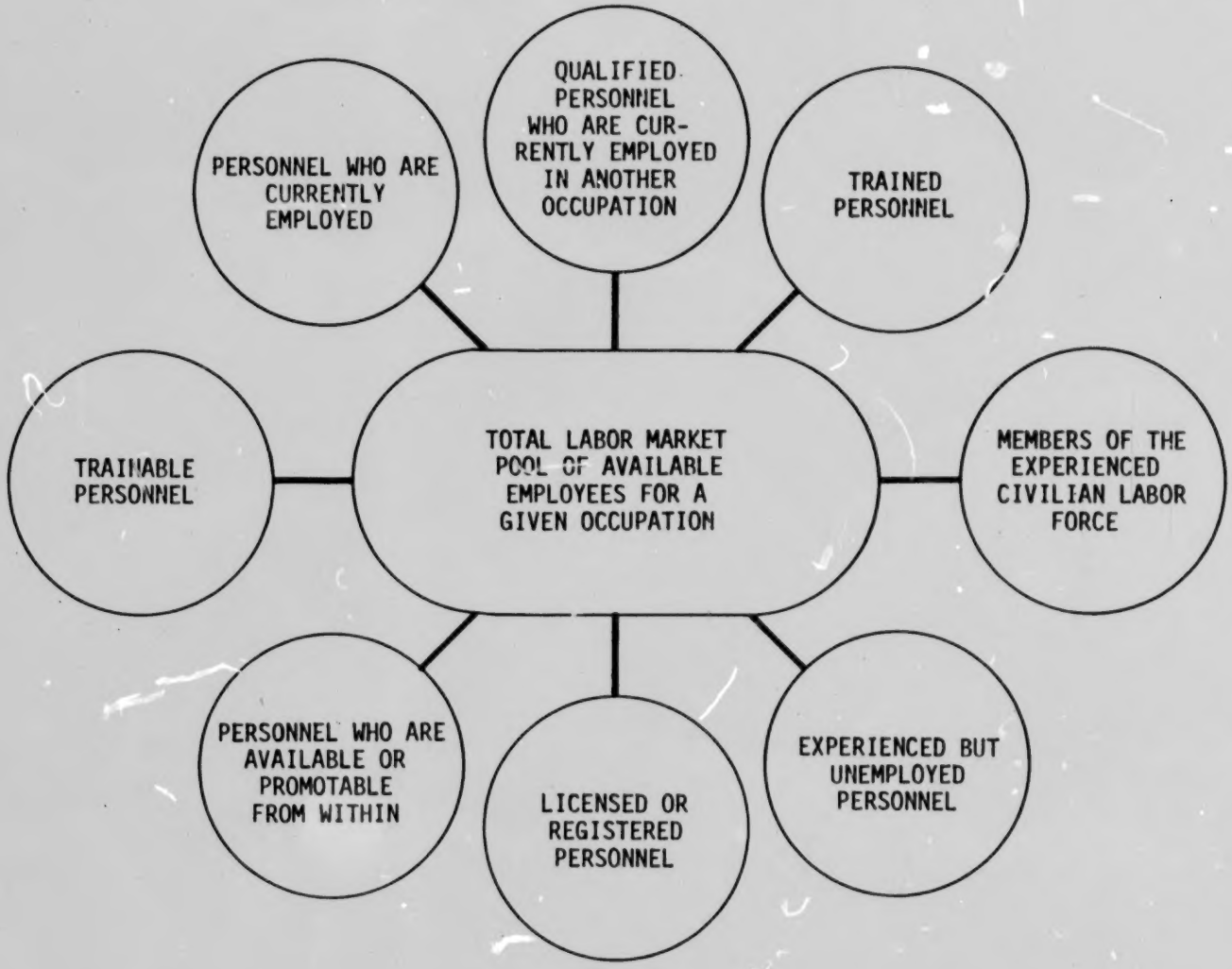

QUALIFIED PERSONNEL WHO ARE CURRENTLY EMPLOYED IN ANOTHER OCCUPATION
PERSONNEL WHO ARE CURRENTLY EMPLOYED
TRAINED PERSONNEL
TRAINABLE PERSONNEL
TOTAL LABOR MARKET POOL OF AVAILABLE EMPLOYEES FOR A GIVEN OCCUPATION
MEMBERS OF THE EXPERIENCED CIVILIAN LABOR FORCE
PERSONNEL WHO ARE AVAILABLE OR PROMOTABLE FROM WITHIN
LICENSED OR REGISTERED PERSONNEL
EXPERIENCED BUT UNEMPLOYED PERSONNEL

FIGURE 1: LABOR MARKET POOL

- Currently employed in the occupation. Anyone currently employed in an occupation would certainly be a candidate for another job in that occupation because of his a priori qualification. Statistics on this group of individuals are the easiest to locate.

- Qualified but currently employed in another occupation. These are people who are working in an occupation other than the one they are most qualified for, often because they could not find a job in their primary occupation. The fact that they are currently not working in their primary occupation, however, should not exclude them from being considered available in that occupation. Statistics on these individuals are sometimes difficult to locate.

- Trained in the occupation. An individual who has completed a recognized training program for an occupation is part of the available labor pool, regardless of his current labor market status. Statistics on these individuals are often available from educational institutions.

- Members of the experienced civilian labor force. This group includes those who are presently working in the occupation and those whose last job was in the occupation. It does not include military personnel or college students living in dormitories. The U.S. Bureau of the Census publishes much data on this group.

- Experienced but unemployed. Those experienced in an occupation but currently unemployed are among the most readily available groups of individuals because they are usually actively seeking employment. Statistics are often published on this group.

- Licensed or registered. All personnel licensed or registered for an occupation are part of the available labor supply for that occupation, regardless of their current labor market status. Statistics on these individuals can sometimes be obtained from licensing and registering agencies.

- Available or promotable from within. Personnel who are currently employed within the institution must be considered a part of the available pool. Statistics on these individuals may be obtained during the contractor's internal work force analysis.

.Trainable. Individuals who lack specific qualification for an occupation but have the requisite educational background and aptitude may be considered available if they can be easily trained. The ease of training them is dependent on the existence of in-house training programs or nearby training institutions. Statistics on these individuals may be difficult to obtain.

DATA CHARACTERISTICS

Work force analysis data used by higher education and health care contractors must possess three major characteristics in order to be useful for specifying availability of each affected class within a detailed job classification. First, the data must be on a detailed occupation, not just for a group of occupations such as craftsmen or health workers. Lists of such detailed occupations are presented in Tables 1 and 2. Second, the data must be distributed in a meaningful way by sex, minority group, and labor market area. Third, the data must be of a quality appropriate for use in preparing affirmative action programs. These latter two requirements are discussed further below.

Distributional Characteristics

The labor market availability data for each occupation must have certain distributional characteristics in order to be useful to the contractor. The primary distributional characteristics required are:

.Sex, which must be included as an indicator for all data.

.Minority group distribution for each sex. The minority group categories used are: "Black," "Spanish American," "Asian American," "American Indian," and "Other."

.Geographic area for all occupations which do not have a nationwide labor market. The data must be broken down by local labor market, such as city, county, standard metropolitan statistical area (SMSA), or state.

Quality Characteristics

Basing affirmative actions on "bad" data may only tend to aggravate certain discriminatory practices, particularly when the data has either an overrepresentative or underrepresentative bias for a given group. In order for availability data to be meaningful in affirmative action programs, it should have the following qualities:

- Currency. Data should be current enough to depict the labor force as it actually is, not as it used to be. Basing affirmative actions on historical employment patterns for minorities and women will only perpetuate discrimination in employment. Where possible, data which are less than five years old should be used. Particular attention must be given the currency of unemployment statistics, which vary considerably over time.

- Validity and reliability. Data should be truly representative of that occupation, sex, or minority group for which it is to be collected. For example, occupational data collected by a survey of heads of households would not be a valid representation of both sexes because heads of households are predominately male. When data have been combined from multiple sources, care must be taken to ensure that the sources are compatible. For example, the results of the above occupational survey sampling heads of households could not be combined with the results of a survey using employed workers as its sample base. Also, the use of data with obvious sampling biases must be avoided wherever possible. These biases are often found in membership data of professional societies that only represent members and not the entire profession.

- Accessibility. Data must be readily available in published form. The use of unpublished data is discouraged because of its limited availability for comparison purposes. It should be used only when its authenticity can be well documented.

II. SOURCES OF AVAILABILITY DATA FOR OCCUPATIONS FOUND IN HIGHER EDUCATION INSTITUTIONS

This section presents sources of availability data for occupations found in higher education institutions. Table 1, Higher Education Occupations Availability Data Matrix, cross-references the occupations with a number of coded reports. The census reports referenced in the first column are described in Appendix A, and other possibly useful manpower studies and reports referenced in the second column are described in Appendix B.

In descending order, the occupations are grouped into major, intermediate, and detailed classifications to simplify the use of the matrix when looking up an occupation. For example, a major occupation is "EXECUTIVES, ADMINISTRATORS, MANAGERS," under which are intermediate occupations such as "Chief officers." Under "Chief officers" are detailed occupations such as "Academic officers."

In Table 1, the health and medical occupations found in average sized colleges and universities are marked with an asterisk (*). For larger institutions and those with extensive medical programs and hospitals, the complete list of health care occupations in Table 2 should also be used.

The sources of availability data presented for the occupations are not necessarily exhaustive. They are only those currently known to the Office for Civil Rights (OCR) to be useful in the conduct of labor market availability analyses. Not all of the sources provide statistics which are complete or in the proper format for determining availability. However, when used jointly all of the sources are valuable to some extent.

BEST COPY AVAILABLE

TABLE 1

HIGHER EDUCATION OCCUPATIONS
AVAILABILITY DATA MATRIX

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
EXECUTIVES, ADMINISTRATORS, MANAGERS	PC(1)-C and -D, PC(2)-7A	7, 8, 15, 23, 29
Assistants to the president		7
Board members/trustees		↓
Bookstore managers		↓
Chief officers		↓
Academic		↓
Business		↓
Development		↓
Librarian	PC(1)-D, PC(2)-7A	↓
Planning	↓	↓
Public relations	PC(1)-D, PC(2)-7A	↓
Student life	↓	↓
Comptrollers/treasurers	↓	7
Deans	↓	↓
Dean of Men	↓	↓
Dean of School (specify)	↓	15
Dean of Women	↓	7
Directors	↓	↓
Admissions	↓	↓
Alumni association	↓	↓
Athletics	↓	↓
Budget	↓	↓
Community services	↓	↓
Computer center	↓	↓
Food services	PC(1)-D, PC(2)-7A	↓
Information office	↓ ↓	↓
Institutional studies	↓ ↓	↓
Laboratory school	↓ ↓	↓
Personnel services	↓ ↓	↓
Physical plant	PC(1)-D, PC(2)-7A	↓
Sponsored research administration	↓ ↓	↓
Student counseling	↓ ↓	↓
Student financial aid	↓ ↓	↓
Student health	↓ ↓	↓
Student housing	↓ ↓	↓
Student placement	↓ ↓	↓
Student union	↓ ↓	↓
Head coaches (specify athletic program)	↓ ↓	7
Presidents	↓ ↓	↓
Purchasing agents	PC(1)-D, PC(2)-7A	↓
Registrars	↓ ↓	↓
Staff legal counselors	PC(1)-D, PC(2)-7A	↓
PROFESSIONALS, INSTRUCTORS	PC(1)-D, PC(2)-7A	7, 12, 14
Agriculture and natural resources	↓ ↓	12, 14, 46
Agricultural and farm management	↓ ↓	↓ ↓
Agricultural business	↓ ↓	↓ ↓
Agricultural economics	↓ ↓	↓ ↓
Agriculture, general	↓ ↓	↓ ↓

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Agriculture and forestry technologies, (baccalaureate and higher programs)		12, 14
Agronomy (field crops and crop management)		
Animal science (husbandry)		
Dairy science (husbandry)		
Fish, game, and wildlife management		
Food science and technology		
Forestry		
Horticulture (fruit and vegetable production)		
Natural resources management		
Ornamental horticulture (floriculture, nursery science)		
Poultry science		
Range management		
Soils science (management and conservation)		
Architecture and environmental design	PC(1)-D, PC(2)-7A	12, 14, 27, 28
Architecture, general		
City, community, and regional planning		
Environmental design, general		
Interior design		
Landscape architecture		
Urban architecture		
Area studies		
African studies		
American studies		
Asian studies, general		
East Asian studies		
Eastern European studies		
European studies, general		
Islamic studies		
Latin American studies		
Middle Eastern studies		
Pacific area studies		
Russian and Slavic studies		
South Asian (India, etc.) studies		
Southeast Asian studies		
West European studies		
Biological sciences	PC(1)-D, PC(2)-7A	12, 14, 46
Anatomy		
Bacteriology		
Biology, general		
Biochemistry		
Biometrics and biostatistics		
Biophysics		
Botony, general		
Cell biology (cytology, cell physiology)		
Ecology		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Embryology		12, 14
Entomology		
Genetics		
Histology		
Marine biology		
Microbiology		
Molecular biology		
Neurosciences		
Nutrition, scientific (excludes nutrition in home economics and dietetics)		
Pathology, human and animal		
Pharmacology, human and animal		
Physiology, human and animal		
Plant pathology		
Plant pharmacology		
Plant physiology		
Radiobiology		
Toxicology		
Business and management		
Accounting	PC(1)-D, PC(2)-7A	
Banking and finance		
Business and commerce, general		
Business economics		
Business management and administration		
Business statistics		
Hotel and restaurant management		
Insurance		
International business		
Investments and securities		
Labor and industrial relations	PC(1)-D, PC(2)-7A	
Marketing and purchasing		
Operations research	PC(1)-D, PC(2)-7A	
Personnel management		
Real estate		
Secretarial studies (baccalaureate and higher programs)		
Transportation and public utilities		
Communications		
Advertising		
Communication media (use of videotape, films, etc., oriented specifically toward radio/television)	PC(1)-D, PC(2)-7A	
Communications, general		
Journalism (printed media)	PC(1)-D, PC(2)-7A	
Radio/television		
Computer and information sciences	PC(1)-D, PC(2)-7A	12, 14, 46
Computer and information sciences, general		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Computer programming	PC(1)-D, PC(2)-7A	12, 14
Data processing		
Information sciences and systems		
Systems analysis		
Education		
Administration of special education		
Adult and continuing education		
Art education (methodology and theory)		
Business, commerce, and distributive education		
Curriculum and instruction		
Driver and safety education		
Education, general		
Education of the culturally disadvantaged		
Education of the deaf		
Education of the emotionally disturbed		
Education of the gifted		
Education of the mentally retarded		
Education of the multiple handicapped		
Education of the physically handicapped		
Education of the visually handicapped		
Educational administration		
Educational psychology (including learning theory)		
Educational statistics and research		
Educational supervision		
Educational testing, evaluation, and measurement		
Elementary education, general		
Health education (including family life education)		
Higher education, general		
Industrial arts, vocational, and technical education		
Junior and community college education		
Junior high school education		
Mathematics education		
Music education (methodology and theory)		
Physical education		
Pre-elementary education (kindergarten)		
Reading education (methodology and theory)		
Remedial education		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Science education (methodology and theory)		12, 14
Secondary education, general		
Social foundations (history and philosophy of education)		
Special education, general		
Special learning disabilities		
Speech correction		
Student personnel (counseling and guidance)	PC(1)-D, PC(2)-7A	
Engineering		4, 12, 14, 24, 25, 26
Aerospace, aeronautical and astronautical engineering		
Agricultural engineering		
Architectural engineering		
Bioengineering and biomedical engineering		
Ceramic engineering		
Chemical engineering (including petroleum refining)	PC(1)-D, PC(2)-7A	
Civil, construction, and transportation engineering		
Electrical, electronics, and communications engineering		
Engineering, general		
Engineering mechanics		
Engineering physics		
Engineering technologies (baccalaureate and higher programs)		
Environmental and sanitary engineering		
Geological engineering		
Geophysical engineering		
Industrial and management engineering	PC(1)-D, PC(2)-7A	
Materials engineering		
Mechanical engineering	PC(1)-D, PC(2)-7A	
Metallurgical engineering		
Mining and mineral engineering		
Naval architecture and marine engineering		
Nuclear engineering		
Ocean engineering		
Petroleum engineering (excluding petroleum refining)	PC(1)-D, PC(2)-7A	
Textile engineering		
Fine and applied arts		
Applied design (ceramics, weaving, textile design, fashion design, jewelry, metalsmithing, interior decoration, commercial art)		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Art (painting, drawing, sculpture)	PC(1)-D, PC(2)-7A	12, 14
Art history and appreciation		
Cinematography		
Dance	PC(1)-D, PC(2)-7A	
Dramatic arts		
Fine arts, general		
Music (liberal arts program)	PC(1)-D, PC(2)-7A	
Music (performing, composition, theory)		
Music history and appreciation (musicology)		
Photography		
Foreign Languages		12, 14, 23, 46
African languages (non-Semitic)		
Arabic		
Chinese		
Foreign languages, general (includes concentration on more than one foreign language without major emphasis on one language)		
French		
German		
Greek, classical		
Hebrew		
Indian (Asiatic)		
Italian		
Japanese		
Latin		
Russian		
Scandanavian languages		
Slavic languages (other than Russian)		
Spanish		
Health professions		12, 14, 32, 35, 41
Biomedical communication		
Chiropractic	PC(1)-D, PC(2)-7A	
Clinical social work (medical and psychiatric and specialized rehabilitation services)		
Dental hygiene (baccalaureate and higher programs)		
Dental specialties (work beyond first professional degree, D.D.S. or D.M.D.)		
Dental technologies (baccalaureate and higher programs)	PC(1)-D, PC(2)-7A	
Dentistry, D.D.S. or D.M.D. degree		
Hospital and health care administration		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (CONT.)		
Medical laboratory technologies (baccalaureate and higher programs)	PC(1)-D, PC(2)-7A	12, 14
Medical record librarianship		
Medical specialties (work beyond first-professional degree, M.D.)		
Medicine, M.D. degree		
Nursing (baccalaureate and higher programs)	PC(1)-D, PC(2)-7A	12, 14, 37
Occupational therapy		
Optometry		
Osteopathic medicine, D.O. degree		
Pharmacy		
Physical therapy		1, 2, 12, 14, 31
Podiatry (Pod.D. or D.P.) or podiatric medicine (D.P.M.)	PC(1)-D, PC(2)-7A	
Public health		
Radiologic technologies (baccalaureate and higher programs)	PC(1)-D, PC(2)-7A	
Speech pathology and audiology		
Veterinary medicine (D.V.M. degree)	PC(1)-D, PC(2)-7A	
Veterinary medicine specialties (work beyond first-professional degree, D.V.M.)		
Home economics	PC(1)-D, PC(2)-7A	
Clothing and textiles		
Consumer economics and home management		
Family relations and child development		
Foods and nutrition (include dietetics)		
Home decoration and home equipment		
Institutional management and cafeteria management		
Interdisciplinary studies		
Biological and physical sciences		12, 14, 19, 46
Engineering and other disciplines		
General liberal arts and sciences		
Humanities and social sciences		
Law		6, 12, 14, 22
Letters		
Classics		
Comparative literature		
Creative writing		
English, general		12, 14, 23
Linguistics (include phonetics, semantics, and philology)		
Literature, English		
Philosophy		
Religious studies (exclude theological professions)		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Speech, debate, and forensic science (rhetoric and public address)		12, 14
Teaching of English as a foreign language		
Library science	PC(1)-D, PC(2)-7A	12, 14, 21
Mathematics		4, 12, 14, 46
Applied mathematics		
Statistics, mathematical and theoretical		
Military science		
Aerospace science (Air Force)		
Military science (Army)		
Naval science (Navy, Marines)		
Physical sciences	PC(1)-D, PC(2)-7A	4, 12, 14
Analytical chemistry		
Astronomy	PC(1)-D, PC(2)-7A	
Astrophysics		
Atmospheric sciences and meteorology	PC(1)-D, PC(2)-7A	12, 14, 46
Chemistry, general (exclude biochemistry)		
Earth sciences, general		
Geochemistry		
Geology	PC(1)-D, PC(2)-7A	
Geophysics and seismology		
Inorganic chemistry		
Metallurgy		
Molecular physics		
Nuclear physics		
Oceanography	PC(1)-D, PC(2)-7A	
Organic chemistry		
Paleontology		
Pharmaceutical chemistry		
Physical chemistry		
Physics, general (exclude biophysics)	PC(1)-D, PC(2)-7A	12, 14, 20, 46
Psychology		12, 14, 19, 46
Clinical psychology		
Developmental psychology		
Experimental psychology (animal and human)		
Industrial psychology		
Physiological psychology		
Psychology for counseling		
Psychometrics		
Social psychology		
Statistics in psychology		
Public affairs and services		
Community services, general		
International public service (other than diplomatic service)		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, INSTRUCTORS (Cont.)		
Law enforcement and corrections (baccalaureate and higher programs)		12, 14
Parks and recreation management		
Public administration		
Social work and helping services (other than clinical social work)		
Social sciences	PC(1)-D, PC(2)-7A	4, 12, 14
Afro-American (black culture) studies		
American Indian cultural studies		
Anthropology		12, 14, 46
Archaeology		
Criminology		
Demography		
Economics	PC(1)-D, PC(2)-7A	12, 14, 46
Geography		
History		12, 14, 17
International relations		
Mexican-American cultural studies		
Political science and government	PC(1)-D, PC(2)-7A	12, 14, 16, 46
Sociology		
Urban studies		
Theology		12, 14, 18
Biblical languages		
Religious education		
Religious music		
Theological professions, general		
PROFESSIONALS, OTHER	PC(1)-C and -D, PC(2)-7A	8
Accountants		12, 14
Architects	PC(1)-D, PC(2)-7A	12, 14, 27, 28
Clergymen		
Dental hygienists		12, 14, 31
Dietitians		12, 14, 30, 31
Engineers		4, 12, 14, 24, 25, 26
Aeronautical and astronautical		
Chemical		
Civil		
Electrical and electronic		
Industrial		
Mechanical		
Metallurgical and materials		
Mining		
Petroleum		
Sales		
Farm management advisors		
Foresters and conservationists		
Home management advisors		
Lawyers		6, 12, 14, 22

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, OTHER (Cont.)		
Librarians, archivists, and curators	PC(1)-D, PC(2)-7A	12, 14, 21
Mathematical specialists		4, 12, 14, 46
Actuaries		
Mathematicians		
Statisticians		
Life and physical scientists		4, 12, 14
Agricultural		
Atmospheric and space		12, 14, 46
Biologists		
Chemists		
Geologists		
Marine		
Physicists and astronomers		12, 14, 20, 46
Operations and systems researchers and analysts		
Personnel and labor relations workers		
Physicians, dentists, and related practitioners*		12, 14, 32, 35, 41
Chiropractors		
Dentists		
Optometrists		
Pharmacists		12, 14, 30, 38, 43, 44
Physicians, medical and osteopathic		12, 14, 34, 42
Podiatrists		
Veterinarians		
Registered nurses		12, 14, 37
Religious workers		12, 14, 18
Social scientists		4, 12, 14
Economists		12, 14, 16
Political scientists		12, 14, 46
Psychologists		12, 14, 19, 46
Sociologists		
Urban and regional planners		
Social and recreation workers		
Therapists*		
Vocational and education counselors		
Writers, artists, and entertainers		
Actors		
Athletes and kindred workers		
Authors		
Dancers		
Designers		
Editors and reporters		
Musicians and composers		
Painters and sculptors		
Photographers		
Public relations men and publicity writers		
Radio and television announcers		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
TECHNICIANS	PC(1)-C and -D, PC(2)-7A	8, 12, 14
Computer specialists	PC(1)-D, PC(2)-7A	12, 14, 46
Computer programmers		
Computer systems analysts		
Health technologists and technicians*		1, 2, 3, 46
Clinical laboratory technologists and technicians		1, 2, 30
Health record technologists and technicians		31
Radiologic technologists and technicians		1, 2, 31
Therapy assistants		
Engineering and science technicians		
Agricultural and biological except health		1, 2, 45
Chemical		
Draftsmen		
Electrical and electronic engineering		
Industrial engineering		
Mathematical		
Mechanical engineering		
Surveyors		
Technicians, except health, and engineering science		
Airplane pilots		1, 2
Embalmers		
Flight engineers		1, 2
Radio operators		
Tool programmers, numerical control		1, 2
SALES WORKERS	PC(1)-C and -D, PC(2)-7A	8
Salesmen and sales clerks	PC(1)-D, PC(2)-7A	
CLERICAL AND KINDRED WORKERS	PC(1)-C and -D, PC(2)-7A	1, 2, 3, 8, 46
Bank tellers	PC(1)-D, PC(2)-7A	
Billing clerks		
Bookkeepers		
Cashiers		
Clerical assistants, social welfare		
Collectors, bill and account		
Counter clerks, except food		
Dispatchers and starters, vehicle		
Enumerators and interviewers		
Expediters and production controllers		
File clerks		1, 2
Insurance adjusters, examiners, and investigators		
Library attendants and assistants		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
CLERICAL AND KINDRED WORKERS (Cont.)		
Mail carriers, post office	PC(1)-D, PC(2)-7A	
Mail handlers, except post office		
Messengers, including telegraph, and office boys		
Office machine operators		
Bookkeeping and billing machine		
Calculating machine		
Computer and peripheral equipment		
Duplicating machine		
Keypunch		
Tabulating machine		
Payroll and timekeeping clerks		
Proofreaders		
Real estate appraisers		1, 2
Receptionists		
Secretaries		
Legal		
Medical		
Shipping and receiving clerks		
Statistical clerks		
Stenographers		1, 2
Stock clerks and storekeepers		
Teacher aides, except school monitors		
Telegraph operators		
Telephone operators		
Typists		1, 2
Weighers		
CRAFTSMEN AND KINDRED WORKERS	PC(1)-C and -D, PC(2)-7A	8, 46
Automobile accessories installers	PC(1)-D, PC(2)-7A	1, 2
Bakers		
Blacksmiths		
Boilermakers		
Bookbinders		
Brickmasons and stonemasons		1, 2
Bulldozer operators		
Cabinetmakers		
Carpenters		1, 2
Carpet installers		
Cement and concrete finishers		
Compositors and typesetters		
Cranemen, derrickmen, and hoistmen		
Decorators and window dressers		
Dental laboratory technicians		
Electricians		
Electric power linemen and cablemen		
Electrotypers and stereotypers		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
CRAFTSMEN AND KINDRED WORKERS (Cont.)		
Engravers, except photoengravers	PC(1)-D, PC(2)-7A	
Excavating, grading, and road machine operators, except bulldozer		
Floor layers, except tile setters		
Foregemen and hammermen		
Furniture and wood finishers		
Glaziers		
Heat treaters, annealers, and temperers		
Inspectors, scalers, and graders, log and lumber		
Jewelers and watchmakers		
Machinists		
Mechanics and repairmen		
Air conditioning, heating and refrigeration		1, 2
Aircraft		
Automobile		
Automobile body		
Data processing machine		
Farm implement		
Heavy equipment, including diesel		
Household appliance and accessory installers and mechanics		1, 2
Office machine		
Radio and television		
Millers, grain, flour and feed		
Millwrights		
Motion picture projectionists		
Opticians and lens grinders and polishers		
Painters, construction and maintenance		
Paperhangers		
Pattern and model makers, except paper		
Photoengravers and lithographers		
Piano and organ tuners and repairmen		
Plasterers		
Plumbers and pipe fitters		1, 2
Power station operators		
Pressmen and plate printers, printing		
Roofers and slaters		
Sheetmetal workers and tinsmiths		
Shipfitters		
Sign painters and letterers		
Stationary engineers		
Stone cutters and stone carvers		
Structural metal craftsmen		
Tailors		
Telephone installers and repairmen		
Telephone linemen and splicers		
Tile setters		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
CRAFTSMEN AND KINDRED WORKERS (Cont.)		
Tool and die makers	PC(1)-D, PC(2)-7A	
Upholsterers	↓ ↓	1, 2
OPERATIVES	PC(1)-C and -D, PC(2)-7A	8
Asbestos and insulation workers	PC(1)-D, PC(2)-7A	
Assemblers		
Blasters and Powdermen		
Bottling and canning operatives		
Chairmen, rodmen, and axmen, surveying		
Clothing ironers and pressers		
Cutting operatives		
Dressmakers and seamstresses, except factory		
Drillers, earth		
Dry wall installers and lathers		
Filers, polishers, sanders and buffers		
Furnacemen, smeltermen and pourers		
Garage workers and gas station attendants		
Produce graders and packers, except factory and farm		
Heaters, metal		
Laundry and drycleaning operatives		
Meat cutters and butchers		
Metal platers		
Mixing operatives		
Oilers and greasers, except auto		
Packers and wrappers, except meat and produce		
Painters, manufactured articles		
Photographic process workers		
Precision machine operatives		
Drill press operatives		
Grinding machine operatives		
Lathe and milling machine operatives		
Punch and stamping press operatives		
Riveters and fasteners		
Sailors and deckhands		
Sawyers		
Sewers and stitchers		
Solderers		
Stationary firemen		1, 2
Welders and flamecutters		
Winding operatives		
TRANSPORT EQUIPMENT OPERATIVES	PC(1)-C and D, PC(2)-7A	8
Boatmen and canalmen	PC(1)-D, PC(2)-7A	
Bus drivers		
Conductors and motormen, urban rail transit		

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
TRANSPORT EQUIPMENT OPERATIVES (Cont.)		
Deliverymen and routemen Forklift and tow motor operatives Parking attendants Railroad switchmen Taxicab drivers and chauffeurs Truck drivers	PC(1)-D, PC(2)-7A	
LABORERS	PC(1)-C and D, PC(2)-7A	8
Animal caretakers Carpenters' helpers Construction laborers, except carpenters' helpers Fishermen and oystermen Freight and material handlers Garbage collectors Gardeners and groundskeepers, except farm Longshoremen and stevedores Lumbermen, raftsmen, and woodchoppers Stock handlers Teamsters Vehicle washers and equipment cleaners Warehousemen	PC(1)-D, PC(2)-7A	
SERVICE WORKERS	PC(1)-C and D, PC(2)-7A	8
Cleaning service workers Chambermaids and maids, except private household Cleaners and charwomen Janitors and sextons Food service workers Bartenders Busboys Cooks, except private household Dishwashers Food counter and fountain workers Waiters Health service workers* Dental assistants Health aides, except nursing Nursing aides, orderlies, and attendants Practical nurses Personal service workers Airline stewardesses and stewards Attendants, recreation and amusement Baggage porters and bellhops Barbers	PC(1)-D, PC(2)-7A	1, 2, 31 1, 2, 36

TABLE 1 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
SERVICE WORKERS (Cont.)		
Boarding and lodging housekeepers Bootblacks Child care workers, except private household Elevator operators Hairdressers and cosmetologists Housekeepers, except private household School monitors Ushers, recreation and amusement Welfare service aides Protective service workers Crossing guards and bridge tenders Firemen, fire protection Guards and watchmen Policemen and detectives	PC(1)-D, PC(2)-7A	

III. SOURCES OF AVAILABILITY DATA FOR OCCUPATIONS FOUND IN HEALTH CARE INSTITUTIONS

This section presents sources of availability data for occupations found in health care institutions. Table 2, Health Care Occupations Availability Data Matrix, cross-references the occupations with a number of coded reports. The census reports referenced in the first column are described in Appendix A, and other possibly useful manpower studies and reports referenced in the second column are described in Appendix B.

In descending order, the occupations are grouped into major, intermediate, and detailed classifications to simplify the use of the matrix when looking up an occupation. For example, a major occupation is "PROFESSIONALS, MEDICAL" under which are intermediate occupations such as "Physicians and Surgeons." Under "Physicians and Surgeons" are detailed occupations starting with "Anaesthesiologists."

The sources of availability data presented for the occupations are not necessarily exhaustive. They are only those currently known to OCR to be useful in the conduct of labor market availability analyses. Not all of the sources provide statistics which are complete or in the proper format for determining availability. However, when used jointly all of the sources are valuable to some extent.

TABLE 2

HEALTH CARE OCCUPATIONS
AVAILABILITY DATA MATRIX

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
EXECUTIVES, ADMINISTRATORS, MANAGERS	PC(1)-C and -D, PC(2)-7A	8
Administrators	PC(1)-D, PC(2)-7A	
Credit officers	↓	↓
Financial managers	↓	↓
Funeral directors	↓	↓
Managers and superintendants, building	↓	↓
Office managers	↓	↓
Purchasing agents and buyers	↓	↓
Restaurant, cafeteria, and bar managers	↓	↓
PROFESSIONALS, MEDICAL		32
Clinical laboratory personnel	PC(1)-D, PC(2)-7A	12, 14, 30
Biologists		12, 14, 46
Blood bank technologists		
Chemistry technologists		
Cytotechnologists		
Health physicists		
Medical technologists		
Microbiology technologists		
Public health scientists		
Dental service personnel	PC(1)-D, PC(2)-7A	12, 14
Dental hygienists	PC(1)-D, PC(2)-7A	12, 14, 31
Dentists	↓ ↓	↓ ↓
Oral surgeons		
Periodontists		
Dietetic service personnel	PC(1)-D, PC(2)-7A	30, 31
Dietitions		
Nutritionists		
Medical information personnel		
Health writers		
Medical communications specialists		12, 14
Medical computer specialists		
Medical illustrators		
Medical record librarians		12, 12, 31
Physicians and surgeons	PC(1)-D, PC(2)-7A	12, 14, 34, 35, 42
Anaesthesiologists		↓ ↓ ↓
Colon and rectal surgeons		↓ ↓ ↓
Dermatologists		↓ ↓ ↓
Family practitioners		↓ ↓ ↓
General physicians		↓ ↓ ↓
General surgeons		↓ ↓ ↓
Gynecologists		↓ ↓ ↓
Internists		↓ ↓ ↓
Allergists		↓ ↓ ↓
Cardiovascular specialists		↓ ↓ ↓
Gastroenterologists		↓ ↓ ↓
Neurological surgeons		↓ ↓ ↓
Neuropathologists		↓ ↓ ↓
Obstetricians		↓ ↓ ↓

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, MEDICAL (Cont.)		
Ophthalmologists		34, 35, 39, 40, 41, 42
Orthopaedic surgeons		
Otolaryngologists		
Pathologists		
Pediatricians		
Allergists		
Cardiovascular specialists		
Physiatrists		
Physical and rehabilitation specialists		
Plastic surgeons		39, 40, 41
Preventive medicine specialists		
Psychiatrists		
Pulmonary specialists		
Roentgenologists		
Thoracic surgeons		
Urologists		
Radiologic services personnel	PC(1)-D, PC(2)-7A	12, 14
Radiation physicists		
Radiation safety officers		
Radiopharmacists		
Registered professional nurses	PC(1)-D, PC(2)-7A	12, 14, 37
Rehabilitation personnel		
Exercise physiologists		
Rehabilitation counselors		
Therapists	PC(1)-D, PC(2)-7A	
Art		
Corrective		
Education		
Manual arts		
Music	PC(1)-D, PC(2)-7A	
Occupational		1, 2, 12, 14, 31
Physical		
Recreational		
Vocational		
Social services personnel		12, 14
Genetic counselors		
Medical social workers	PC(1)-D, PC(2)-7A	
Population and family planning specialists		
Psychiatric social workers	PC(1)-D, PC(2)-7A	12, 14
Psychologists		12, 14, 46
Special educators		
Allied health educators		
Community health educators		
Teachers of the deaf		
Teachers of the emotionally disturbed		
Teachers of the learning disabled		
Teachers of the mentally retarded		
Teachers of the physically handicapped		

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, MEDICAL (Cont.)		
Teachers of the visually handicapped		12, 14
Speech and hearing personnel		
Audiologists		
Speech pathologists		
Vision care personnel		
Optometrists	PC(1)-D, PC(2)-7A	12, 14
Opticians		
Medical professionals not elsewhere classified		
Alcohol/drug abuse specialists		
Bacteriologists		12, 14
Biostatisticians		
Chiropractors	PC(1)-D, PC(2)-7A	
Engineers		12, 14, 46
Biomedical		
Chemical	PC(1)-D, PC(2)-7A	
Epidemiologists		
Health economists		
Health planners		
Health systems analysts		
Morticians		
Optometrists	PC(1)-D, PC(2)-7A	12, 14
Osteopaths		
Pharmacists	PC(1)-D, PC(2)-7A	12, 14, 30, 38, 43, 44
Physicians' assistants specialists		
Podiatrists	PC(1)-D, PC(2)-7A	12, 14
Psychopathologists		
Psychotherapists		
Veteranarians	PC(1)-D, PC(2)-7A	12, 14
PROFESSIONALS, OTHER	PC(1)-C and -D, PC(2)-7A	8, 12, 14
Accountants	PC(1)-D, PC(2)-7A	
Architects		12, 14, 27, 28
Clergymen		
Computer specialists		1, 2, 12, 14, 46
Computer programmers		
Computer systems analysts		
Engineers		4, 12, 14, 24, 25, 26
Aeronautical and astronautical		
Civil		
Electrical and electronic		
Industrial		
Mechanical		
Metallurgical and materials		
Petroleum		
Farm management advisors		
Foresters and conservationists		12, 14, 46
Home management advisors		
Laboratory animal specialists		

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
PROFESSIONALS, OTHER (Cont.)		
Lawyers	PC(1)-D, PC(2)-7A	12, 14
Librarians		
Life and physical scientists		12, 14, 46
Agricultural		
Marine		
Mathematical specialists		
Actuaries		
Mathematicians		
Statisticians		
Operations and systems researchers and analysts	PC(1)-C and -D, PC(2)-7A	
Personnel and labor relations workers	PC(1)-D, PC(2)-7A	
Social scientists		12, 14, 46
Economists		
Political scientists		
Sociologists		
Urban and regional planners		
Recreation workers		
Vocational and education counselors		
Writers, artists, and entertainers		
Actors		
Athletes and kindred workers		
Authors		
Designers		
Editors and reporters		
Musicians and composers		
Painters and sculptors		
Photographers		
Public relations men and publicity writers		
Radio and television announcers		
TECHNICIANS		1, 2, 8, 45, 46
Clinical laboratory personnel		1, 2, 30
Health physics technicians		
Hematology technologists		
Histologic technicians		
Laboratory animal workers		
Medical laboratory assistants		
Medical laboratory technicians		
Dietetic services personnel		
Dietetic assistants		
Dietetic technicians		
Emergency care personnel		
Emergency and disaster specialists		
Emergency medical technicians		
Engineering and science technicians	PC(1)-C and -D, PC(2)-7A	
Agricultural and biological, except health	PC(1)-D, PC(2)-7A	1, 2, 45

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
TECHNICIANS (Cont.)		
Chemical	PC(1)-D, PC(2)-7A	1, 2, 45
Draftsmen		
Electrical and electronic engineering		
Industrial engineering		1, 2
Mathematical		
Mechanical engineering		
Surveyors		
Environmental sciences personnel		
Environmental health technicians		
Industrial hygienists		
Sanitarian aides		
Medical information personnel		
Community health workers		
Medical photographers		
Medical record technicians	PC(1)-D, PC(2)-7A	31
Medical transcriptionists		
Medical instrumentation and machine operation personnel		
Cardiopulmonary technicians		
Cardiovascular technicians		
Dialysis technicians		
Electrocardiograph technicians		
Electroencephalograph technicians		
Electromyograph technicians		
Respiratory therapy technicians		
Mental health personnel		
Mental health associates		
Mental health technologists		
Physician support personnel		
Obstetrical technicians		
Operating room technicians		
Physicians' assistants, primary care		
Podiatric assistants		
Radiologic services personnel		1, 31
Nuclear medicine technologists		
Radiation therapy technologists		
Radiologic technologists/technicians	PC(1)-D, PC(2)-7A	
Rehabilitation personnel		
Orthotic/prosthetic assistants		
Orthotic/prosthetic technicians		
Orthotists/prosthetists		
Rehabilitation homemaking specialists		
Therapy assistants	PC(1)-D, PC(2)-7A	1, 2
Dance therapists		
Occupational therapy assistants		1, 2
Physical therapy assistants		
Recreational therapy technicians		
Rehabilitation therapy assistants		
Social services personnel		
Genetic assistants		

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
TECHNICIANS (Cont.)		
Medical social worker assistants		
Psychiatric social worker assistants		
Speech and hearing personnel		
Audiology assistants		
Speech pathology assistants		
Technicians, except health and engineering and science	PC(1)-C and -D, PC(2)-7A	
Airplane pilots	PC(1)-D, PC(2)-7A	1, 2
Embalmers	↓ ↓	
Flight engineers		1, 2
Radio operators		
Tool programmers, numerical control		1, 2
Vision care personnel		
Ophthalmic assistants		
Ophthalmic dispensers		
Optometric assistants		
Orthoptists		
Medical technicians not elsewhere classified		
Alcohol and drug abuse assistants		
Biomedical engineering technicians		
Inhalation therapists		1
Medical teaching assistants		
Pharmacy technicians		
SALES WORKERS	PC(1)-C and -D, PC(2)-7A	8
Salesmen and sales clerks	PC(1)-D, PC(2)-7A	
CLERICAL AND KINDRED WORKERS	PC(1)-C and -D, PC(2)-7A	1, 2, 8, 46
Billing clerks	PC(1)-D, PC(2)-7A	
Bookkeepers	↓ ↓	
Cashiers		
Clerical assistants, social welfare		
Collectors, bill and account		
Counter clerks, except food		
Dispatchers and starters, vehicle		
Enumerators and interviewers		
Expediters and production controllers		
File clerks		1, 2
Insurance adjusters, examiners, and investigators		
Library attendants and assistants		
Mail handlers		
Messengers, including telegraph, and office boys		
Office machine operators		
Bookkeeping and billing machine		
Calculating machine		
Computer and peripheral equipment	↓ ↓	

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
CLERICAL AND KINDRED WORKERS (Cont.)		
Duplicating machine	PC(1)-D, PC(2)-7A	
Keypunch		
Tabulating machine		
Payroll and timekeeping clerks		
Receptionists		
Secretaries		
Legal		
Medical		
Shipping and receiving clerks		
Statistical clerks		
Stenographers		1, 2
Stock clerks and storekeepers		
Telegraph operators		
Telephone operators		
Typists		1, 2
Weighers		
CRAFTSMEN AND KINDRED WORKERS	PC(1)-C and -D, PC(2)-7A	8, 46
Automobile accessories installers	PC(1)-D, PC(2)-7A	1, 2
Bakers		
Blacksmiths		
Boilermakers		
Bookbinders		
Brickmasons and stonemasons		1, 2
Bulldozer operators		
Cabinetmakers		1, 2
Carpenters		
Carpet installers		
Cement and concrete finishers		
Compositors and typesetters		
Cranemen, derrickmen, and hoistmen		
Decorators and window dressers		
Dental laboratory technicians		
Electric power linemen and cablemen		
Electricians		
Engravers, except photoengravers		
Excavating, grading, and road machine operators, except bulldozer		
Floor layers, except tile setters		
Forgemen and hammermen		
Furniture and wood finishers		
Furriers		
Glaziers		
Jewelers and watchmakers		
Job and die setters, metal		
Machinists		
Mechanics and repairmen		
Air conditioning, heating, and refrigeration		1, 2
Aircraft		
Automobile		

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
CRAFTSMEN AND KINDRED WORKERS (Cont.)		
Automobile body	PC(1)-D, PC(2)-7A	
Data processing machine		
Farm implement		
Heavy equipment, including diesel		
Household appliance and accessory installers and mechanics		1, 2
Office machine		
Radio and television		
Railroad and car shop		
Millwrights		
Motion picture projectionists		
Opticians and lens grinders and polishers		
Painters, construction and maintenance		
Paperhangers		
Pattern and model makers, except paper		
Photoengravers and lithographers		
Plasterers		
Plumbers and pipe fitters		1, 2
Power station operators		
Pressmen and plate printers, printing		
Rollers and finishers, metal		
Roofers and slaters		
Sheet metal workers and tinsmiths		
Shipfitters		
Shoe repairmen		
Sign painters and letterers		
Stationary engineers		
Stone cutters and stone carvers		
Structural metal craftsmen		
Tailors		
Telephone installers and repairmen		
Tile setters		
Tool and die makers		
Upholsterers		1, 2
OPERATIVES	PC(1)-C and -D, PC(2)-7A	8
Asbestos and insulation workers	PC(1)-D, PC(2)-7A	
Assemblers		
Bottling and canning operatives		
Chainmen, rodmen, and axmen, surveying		
Clothing ironers and pressers		
Cutting operatives		
Dressmakers and seamstresses, except factory		
Dry wall installers and lathers		
Dyers		
Filers, polishers, sanders, and buffers		
Furnacemen, smeltermen, and pourers		
Garage workers and gas station attendants		
Produce graders and packers, except factory and farm		

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
OPERATIVES (Cont.)		
Heaters, metal	PC(1)-D, PC(2)-7A	
Laundry and drycleaning operatives		
Meat cutters and butchers		
Metal platers		
Oilers and greasers, except auto		
Packers and wrappers, except meat and produce		
Painters, manufactured articles		
Photographic process workers		
Precision machine operatives		
Drill press operatives		
Grinding machine operatives		
Lathe and milling machine operatives		
Punch and stamping press operatives		
Riveters and fasteners		
Sailors and deckhands		
Sawyers		
Sewers and stitchers		
Shoemaking machine operatives		
Stationary firemen		1, 2
Welders and flamecutters		
Winding operatives		
TRANSPORT EQUIPMENT OPERATIVES	PC(1)-C and -D, PC(2)-7A	8
Bus drivers	PC(1)-D, PC(2)-7A	
Conductors and motormen, urban rail transit		
Deliverymen and routemen		
Fork lift and tow motor operatives		
Parking attendants		
Railroad switchmen		
Taxicab drivers and chauffeurs		
Truck drivers		
LABORERS	PC(1)-C and -D, PC(2)-7A	8
Animal caretakers, except farm	PC(1)-D, PC(2)-7A	
Carpenters' helpers		
Construction laborers, except carpenters' helpers		
Frieght and material handlers		
Garbage collectors		
Gardeners and groundskeepers, except farm		
Longshoremen and stevedores		
Lumbermen, raftsmen, and woodchoppers		
Stock handlers		
Teamsters		
Vehicle washers and equipment cleaners		

TABLE 2 (CONT.)

Occupations	Reports	
	U.S. Census Reports	Other Manpower Studies and Statistical Reports
SERVICE WORKERS	PC(1)-C and -D, PC(2)-7A	8
Cleaning service workers	PC(1)-D, PC(2)-7A	
Chambermaids and maids, except private household		
Cleaners and charwomen		
Janitors and sextons		
Food service workers		
Bartenders		
Busboys		
Cooks, except private household		
Dishwashers		
Food counter and fountain workers		
Waiters		
Health service workers		
Dental assistants		1, 2, 31
Health aides, except nursing		
Health trainees		
Lay midwives		
Nursing aides, orderlies, and attendants		1, 2
Practical nurses		1, 2, 36
Personal service workers		
Airline stewardesses and stewards		
Attendants, recreation and amusement		
Baggage porters and bellhops		
Barbers		
Bootblacks		
Child care workers, except private household		
Elevator operators		
Hairdressers and cosmetologists		
Housekeepers, except private household		
Ushers, recreation and amusement		
Welfare service aides		
Protective service workers		
Crossing guards and bridge tenders		
Firemen, fire protection		
Guards and watchmen		
Policemen and detectives		

IV. OBTAINING DATA FROM STATISTICAL ORGANIZATIONS

The organizations most useful in supplying availability data are illustrated in Figure 2. It is from these organizations that the sources of data listed in Sections II and III were identified. In addition to supplying data on the availability of women and minorities, several of these organizations can also assist in recruitment.

FEDERAL ORGANIZATIONS

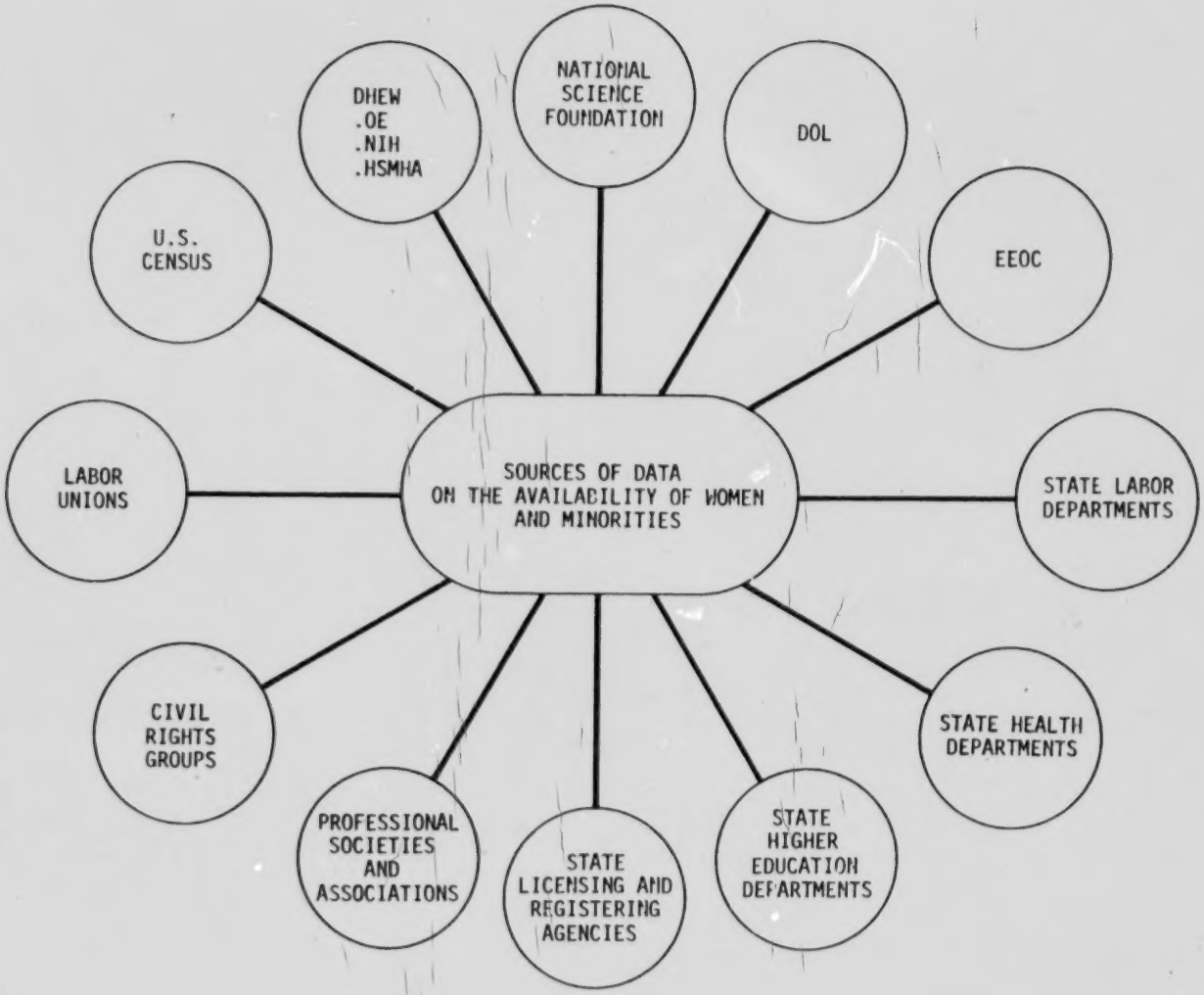
The U.S. Bureau of the Census is a source of many published and unpublished data on occupational, sex, racial, ethnic, and geographic characteristics of the population. Appendix A describes several of the more useful census reports and gives information on how to obtain them.

Within the Department of Health, Education, and Welfare are several reliable data sources. The National Center for Educational Statistics in the Office of Education (OE) collects data on all aspects of higher and vocational education. The Bureau of Health Manpower Education in the National Institutes of Health (NIH) and the National Center for Health Statistics in the Health Services and Mental Health Administration (HSMHA) both collect data on health manpower. In addition, the Office for Civil Rights often collects and publishes availability data found to be useful to contractors.

The National Science Foundation, in conjunction with the National Research Council, maintains information about recipients of the earned doctorate in the natural and social sciences, mathematics, and engineering.

The Department of Labor's Bureau of Labor Statistics and Women's Bureau have some useful data on the availability of minorities and women. However, the data are usually only for major or intermediate occupation groups rather than for detailed occupations.

The Equal Employment Opportunity Commission (EEOC) collects and publishes data on women and minorities currently employed in industry and some state and local government organizations. Although those currently employed represent only a portion of the available labor pool (see Figure 1), these statistics are still useful when combined with data on the remaining portion of the available pool. The statistics may also be used as a cross-check on other sources of data relating to current employment in an occupation.



NOTE: WHILE ALL OF THESE SOURCES ARE USEFUL, NONE OF THEM HAVE COMPLETE DATA ON ALL OCCUPATIONS AND ALL MINORITY GROUPS.

FIGURE 2: DATA SOURCES

STATE ORGANIZATIONS

Although conditions vary from state to state, various state departments sometimes publish data on detailed occupations which is distributed by sex, minority groups, and location. The most useful organizations are departments of labor, health, and higher education. State agencies which license or register individuals for certain occupations can also be useful sources of availability data. These agencies are usually found within the departments of education or health.

PRIVATE ORGANIZATIONS

Professional societies and associations, such as the American Medical Association, the American Political Science Association, and the Association of Schools of Allied Health Professions, etc., often have data on their members which can be used for conducting availability analyses. These data are normally available from the organizations' regularly published journals or special reports.

Some civil rights groups have assembled a limited amount of useful availability data. Women's organizations are often well organized and willing to provide data on the availability of women in various occupations.

There are many local labor unions throughout the country, representing nearly every major occupational group, and some of these are predominately minority organizations. The unions may be of assistance in providing availability data for local areas.

V. DETERMINING AVAILABILITY

This section presents a recommended methodology for determining the labor market availability of women and minorities for a single detailed occupation. The identical procedure should be used for all of the occupations in an institution when determining separate availability figures for each one. Use of this methodology is demonstrated in the three case studies in Appendix C.

Figure 3 (page 42) presents the basic steps to be followed in assembling statistical data to determine the availability for an occupation. Each activity and decision is numbered as a task and should be accomplished in sequence. A special work sheet (Table 3, page 43) has been prepared to assist in the collection and aggregation of statistical data. The contractor should make several photo copies of the work sheet for use in all his availability analyses. The explanation of each of the numbered tasks and the use of the work sheet is provided below.

1. Determine detailed occupational classification of the job. As a first step, the precise detailed occupational classification of the job must be determined. Occupation is not to be confused with a job title, such as "chief," "head," "director," etc., which is often just an indication of rank.) The classification can be determined by skimming through the OCR taxonomies of occupations listed in Tables 1 or 2 until the detailed occupation is located. Enter the name of the detailed occupation at the top of column 4 on the work sheet.

2. Is labor market national or local? Since different procedures are used to obtain the availability data for each labor market area, a decision must be made as to whether the contractor will recruit nationally or locally for an occupation. Generally, there is a nationwide labor market for the executive, administrative, managerial, and professional occupations and a smaller, or local, market for all others. The final determination is up to each contractor, however. Proceed to Task 3 if the labor market is national and to Task 9 if it is local.

3. Is detailed occupation listed in census report PC(2)-7A? Census report PC(2)-7A, which is described in Appendix A, provides national data on both the sex and minority group composition of many detailed occupations. If Tables 1 or 2 indicate that the occupation in question is contained in PC(2)-7A, the report should be obtained and the data used. Record all the pertinent data from the report under column 4 and skip to Task 20 because Tasks 4 through 19 are not required for data in this census report. If PC(2)-7A is not used, proceed to Task 4.

4. Obtain data from other sources. Data on an occupation not included in the census must be obtained from other sources. Check Tables 1 or 2 under "Other Manpower Studies and Statistical Reports" to see if any other sources, such as those discussed in Section IV, can provide availability data. Obtain any data so located. If other sources are not listed in Tables 1 or 2, the contractor should make use of whatever source he deems may be helpful.

5. Are data useful? The data obtained in Task 4 are useful if they concern the detailed occupation in question, not related or similar occupations, and are fairly representative of the total pool of people available for employment in that occupation. If the data are useful, record them on the work sheet under column 4 and proceed to Task 7. If the data are not useful, proceed to Task 6.

6. Use census data for next larger occupational classification. If all accessible sources have been exhausted and no useful data can be obtained for the occupation in question, obtain a copy of census report PC(2)-7A and use data for the next larger occupational grouping. Record all the pertinent data on the work sheet in the appropriate occupation column. Proceed to Task 20.

7. Are sex and minority groups given? Data determined in Task 5 to be useful for an occupation must also break down each minority group by sex. If these distributions are provided in the data, proceed to Task 20; if not, proceed to Task 8.

8. Use census data for next larger occupational classification. If the data obtained in Task 4 are only an overall total of both sexes, determine the number of each sex by multiplying the total times the proportion for the sex in the next larger occupational classification found in report PC(2)-7A. The product is the number for that sex. If the data obtained in Task 4 do not include numbers for each minority group within each sex, this may be determined by multiplying the number of each sex times the proportion of each minority for that sex group in the next larger census occupational classification. The product is the number for that sex in the minority group. Proceed to Task 20.

9. Determine geographic limits of local labor market. The geographic labor market in which the contractor can reasonably be expected to recruit for the occupation must be determined. This area will be either a city, county, SMSA, or state. The area is not necessarily the same for all occupations. Also, it may vary within an occupation depending on the position (i.e., rank or salary level). Each contractor must use his own method for determining the proper limits because the demographic characteristics of the population are too variable for a standard, nationwide formula to be used. The two general approaches suggested are: (1) plot a circle on a map around the institution, using what is estimated to be a reasonable commuting distance as a radius, or (2) review the home addresses of current employees and job

applicants in the occupation to arrive at an average, historical commuting distance. From these distances it can be determined what the local labor market will be.

10. Is detailed occupation listed in census report PC(1)-C or PC(1)-D? Census reports PC(1)-C and -D, which are described in Appendix A, have some data on the state and the SMSAs, counties, and cities within the state. If Tables 1 or 2 indicate that the occupation is contained in either of these reports, a copy of each of them should be obtained; then proceed to Task 14. If the detailed occupation is not contained in either of the reports, proceed to Task 11.

11. Obtain statistics from other sources. Data on detailed occupations not included in the census must be obtained from other sources. Check the other sources of availability data listed in Tables 1 and 2 under "Other Manpower Studies and Statistical Reports." If nothing is listed in this column for the detailed occupation, data must be obtained from such organizations as the state departments of labor, education, or health; vocational schools (public and proprietary); and local unions.

12. Are data useful? To be useful, the data obtained in Task 11 must concern the detailed occupation in question, not related or similar occupations; they must also represent the local labor area specified in Task 9. If they have both of these characteristics, enter all the pertinent data on the work sheet under column 4 in the rows for the appropriate labor market and proceed to Task 16. If the data are not useful, proceed to Task 13.

13. Use next larger occupational classification in census report PC(1)-C or -D. If all accessible sources of data have been exhausted and no useful data can be obtained on the detailed occupation, obtain census reports PC(1)-C and -D and use data for the next larger occupational classification. This will be either an intermediate, other intermediate, or major occupation.

14. Is data given for local area? The occupational data in the census reports must represent the local labor area defined in Task 9. If they are representative, enter all the pertinent data from the reports on the work sheets under the proper occupation column in the rows for the appropriate labor market. Proceed to Task 16. If occupational data are not given for the local labor market, proceed to Task 15.

15. Use data for next larger labor market. If data on the occupation for the local labor market areas defined in Task 9 are not available in the census reports, the next larger labor market will have to be used. The next larger area may be a county, SMSA, or the state, depending upon the size of the local labor market defined in Task 9. Enter all the pertinent data from the reports on the work sheet in the rows for this larger labor market under the proper occupation column.

16. Is sex distribution given? The total number of people in the occupation must be distributed by sex. If the data are so distributed, proceed to Task 18; otherwise, proceed to Task 17.

17. Use census figures for next larger labor market. The number of each sex is computed by multiplying the proportion of each sex in the next larger labor market times the number of total people. The product is the number for that sex. (If the proportions are not obtainable from the next larger labor market, use the next larger market, etc.)

18. Are the numbers of minorities given? The number for each sex must be broken down for each minority group on the work sheet. If the numbers are given, proceed to Task 20; otherwise, proceed to Task 19.

19. Use census figures for next larger occupational classification. For each sex, the number in each minority group is computed by multiplying the proportion of that minority group in the next larger census occupational classification times the total number of the sex. The product is the number of minorities. (If the proportion is not obtainable from the next larger occupation, use the next larger occupation, etc.)

20. Compute preliminary percentages. The absolute numbers obtained in the previous tasks and recorded on the work sheet are used to compute the preliminary percentages of women and minorities available in the labor force. All figures are expressed as a percentage of the total of both sexes. Enter these percentages in the appropriate boxes on the work sheet.

21. Make necessary adjustments for biases or omissions in data. The preliminary percentages must be adjusted for possible statistical biases or omissions. Biases exist in almost all data gathered by sampling because of the way universes are selected and because of incomplete response rates to sample questionnaires. Even data from a 100 percent survey can be biased, depending on the purpose for which they were collected. Omissions are likely to exist in any set of occupational data, as far as total labor market availability is concerned, because most occupational data currently published report on only one segment of the labor force (e.g., those employed, unemployed, trained, etc.), not on the entire pool of those available. Data may also have omissions due to age.

The contractor should review the data for any biases or omissions which may exist by comparing his preliminary figures with other sets of data, including miscellaneous reports which he has gathered in performing this or other availability analyses or special reports that have been obtained specifically for comparison purposes. Examples of such special reports would be EEOC statistical reports or state labor department reports which are too general to be used for determining the availability of a specific occupation but nonetheless have enough broad data to enable cross-checking of the data obtained in an

availability analysis. The advantage of these general types of reports is that they can be used for many different occupations. Depending on any biases or omissions discovered during these comparisons, the contractor, using his best judgment, should adjust the preliminary percentages either upward or downward.

After making the necessary adjustments, the final availability figures are entered in column 5 on the work sheet. These represent the percentage of women and minorities in the external labor market.

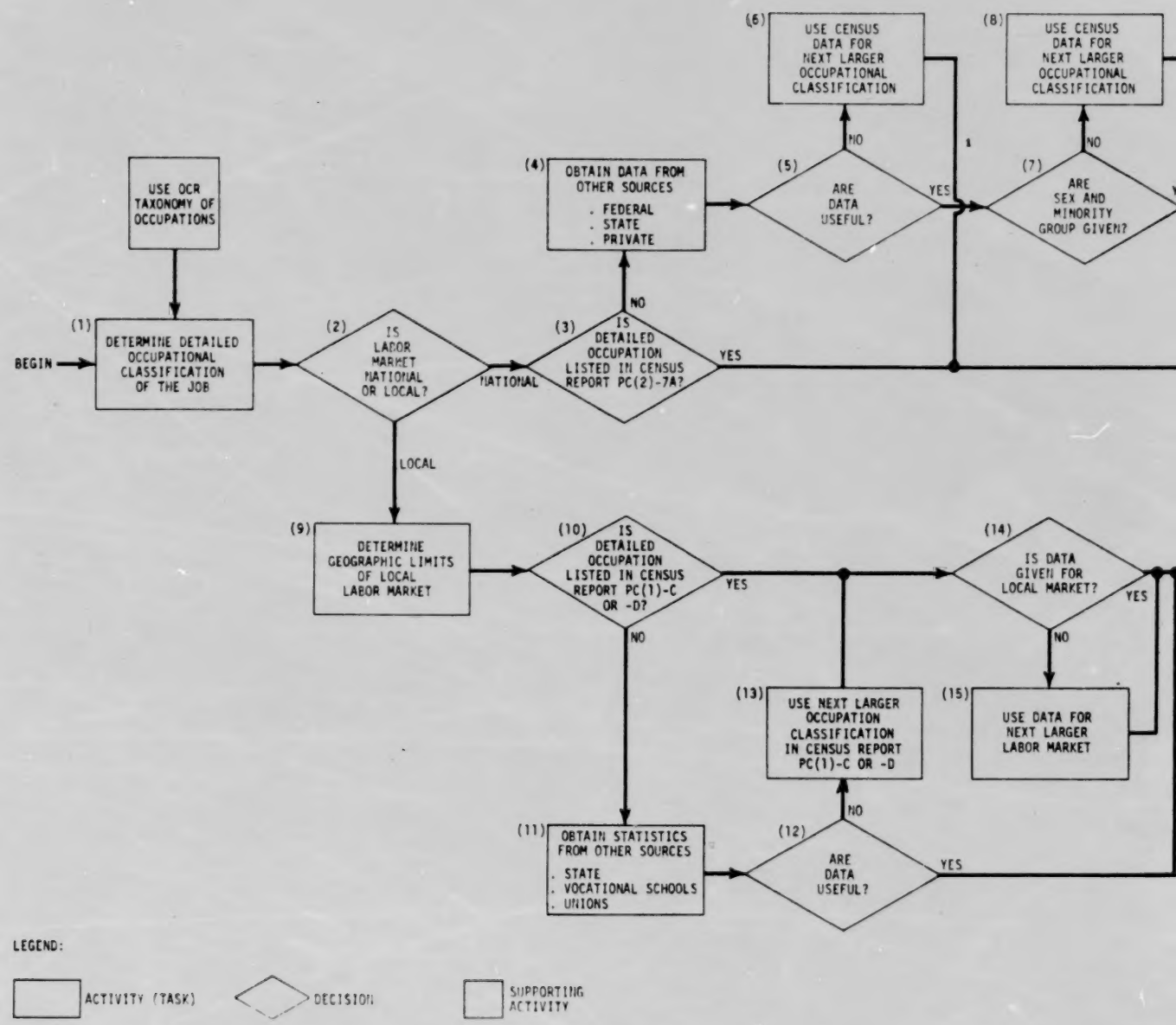


FIGURE 3: PROCEDURE FOR DETERMINING THE PERCENTAGE OF WOMEN AND MINORITIES IN THE LABOR MARKET FOR A GIVEN OCCUPATION

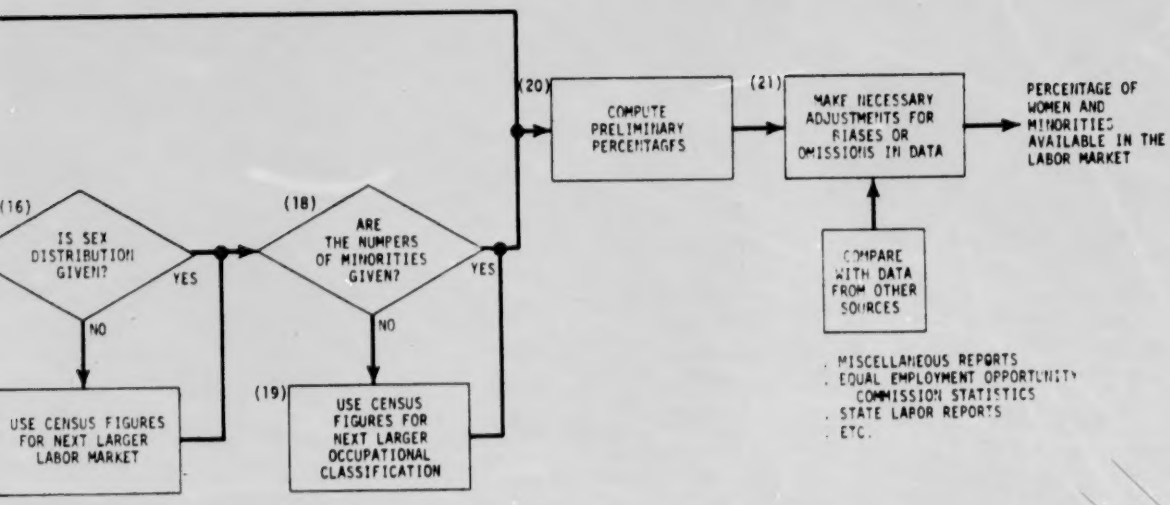

(16)
IS SEX DISTRIBUTION GIVEN?
YES
NO
USE CENSUS FIGURES FOR NEXT LARGER LABOR MARKET
(18)
ARE THE NUMBERS OF MINORITIES GIVEN?
YES
NO
(19)
USE CENSUS FIGURES FOR NEXT LARGER OCCUPATIONAL CLASSIFICATION
(20)
COMPUTE PRELIMINARY PERCENTAGES
(21)
MAKE NECESSARY ADJUSTMENTS FOR BIASES OR OMISSIONS IN DATA
PERCENTAGE OF WOMEN AND MINORITIES AVAILABLE IN THE LABOR MARKET
COMPARE WITH DATA FROM OTHER SOURCES
. MISCELLANEOUS REPORTS
. EQUAL EMPLOYMENT OPPORTUNITY COMMISSION STATISTICS
. STATE LABOR REPORTS
. ETC.

TABLE 3

AVAILABILITY ANALYSIS WORK SHEET

Labor Market		Occupation								(5) Adjusted Availability
		(1) Major Occupation		(2) Other Intermediate Occupation		(3) Intermediate Occupation		(4) Detailed Occupation		
		No.	%	No.	%	No.	%	No.	%	%
Defined Labor Market	TOTAL (both sexes)		100		100		100		100	
	Total Male									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									
	Total Female									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									
Next Larger Labor Market	TOTAL (both sexes)		100		100		100		100	
	Total Male									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									
	Total Female									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									

Note: Totals will not always add due to rounding, overlaps in data, etc.

VI. EVALUATION METHODS

The availability analyses performed by contractors for each occupation will be assessed by OCR for completeness and accuracy during its evaluation of affirmative action plans. OCR is familiar with the statistical procedures used to derive labor market data and knows what the limitations are. Contractors are not expected to obtain availability data on all detailed occupations, but they are expected to use methodological procedures, such as those presented in Section V, to arrive at reasonable estimates for occupations at whatever degree of detail general availability data for the major and intermediate occupations within the labor market indicate will be useful. A separate availability analysis should be conducted for detailed job classifications wherever the percent of minority or female representation in the intermediate occupational group is large enough to justify the expectation that every detailed occupation within the group could and should show minority or female representation. OCR has a broad inventory of labor market availability data, including all applicable census reports, which it will use to verify the accuracy of contractor data.

OCR will use the following criteria in evaluating the completeness of contractor availability data:

- Are data given by detailed occupation wherever that is useful?
- Are data provided on each minority for both sexes, not just total minorities and totals for each sex?
- Is evidence shown that efforts were made to contact an appropriate number of statistical organizations?
- Has census data been used when other sources have not been useful?
- Has the local labor market been geographically defined and justified?
- Have people in other industries been considered part of the availability pool for an occupation, not just people in the contractor's industry?
- Have data been summarized and presented so that statistical procedures can be validated?

OCR will use the following criteria in evaluating the accuracy of contractor availability data:

- Is the detailed occupational classification of the job correct?
- Do data contain obvious biases or omissions?
- Are data reasonably current? If not, have efforts been made to update the data?

- If a sample has been conducted, have the universe, sample size, level of precision, response rate, etc., been described?

- When data are unobtainable, has the composition of the next larger labor market area been used as an estimate for the availability of women?

- When data are unobtainable, has the composition of the next larger occupation been used as an estimate for the availability of minorities?

APPENDIX A

USEFUL U.S. CENSUS REPORTS

The census reports listed in Tables 1 and 2, as well as several others which can be of use in availability analyses, are described in the accompanying chart. All of these reports contain appendices which explain how the data were collected, sampling procedures used, and standard error tables. The reports are available, for a cost ranging from about $3.00 to $7.00, from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

or any Department of Commerce field office.

A listing and description of other useful census subject reports not described in this appendix is contained in Data Access Description No. 32, May 1973. Another report, Data Access Description No. 21, December 1970, describes the various types of unpublished data and special services available from the Bureau of the Census and outlines the bureau's policy regarding availability and cost of such data products and services. Both of these reports are available from:

Publications Distribution Section
Bureau of the Census
Washington, D.C. 20233

APPENDIX A (CONT.)

Report Number	Title	Description
PC(1)-C	Census of Population 1970: General Social and Economic Characteristics	Report published by state. Data seldom given for detailed occupations, but intermediate and major occupations are broken down by sex and minority group for the state, cities, counties, and SMSAs. Useful when used with PC(1)-D. Specify state when ordering.
PC(1)-D	Census of Population 1970: Detailed Characteristics	Report published by state. Detailed occupation data is given for the state and SMSAs. Tables 170, 171, and 172 give detailed occupations of the employed and experienced civilian labor force, broken down by minority group and by sex, and the intermediate occupations of the experienced workers not in the labor force. SMSAs and SMSA counties can be derived from special computer summary tapes. Specify state when ordering.
PC(2)-2B	Census of Population 1970: Mobility for States and the Nation	Table 7 presents mobility status of employed males 25 to 64 years old, broken down by selected detailed occupations. Data are presented for states, divisions, and regions.
PC(2)-5C	Census of Population 1970: Vocational Training	Report provides information concerning vocational training, by fields, including data on years of school completed, sex, occupational status, and industry. Data are shown for "White", "Negro," and "Spanish origin," and total, at the national level only.
PC(2)-7A	Census of Population 1970: Occupational Characteristics	An excellent report; gives national totals on sex, minority group, and dozens of other characteristics for detailed occupations. Data are shown for "White," "Negro," "American Indian," "Japanese," "Chinese," "Filipino," and "Spanish origin." Special state summary computer tapes are available through the Census Bureau.

APPENDIX A (CONT.)

Report Number	Title	Description
PC(2)-7C	Census of Population 1970: Occupation by Industry	Report gives national totals. Table 8 gives detailed occupations of employed persons broken down by detailed industry and sex, but not by minority group. Special state, SMSA, and county reports can be obtained from summary computer tapes through the Census Bureau.
PC(2)-8B	Census of Population 1970: Earnings by Occupation and Education	Data cover the intermediate occupation, earnings, and level of education completed for persons in the experienced civilian labor force. Data are broken down by sex, all races, and Spanish origin. Tables include data for national totals and, selectively, for the North, West, and South.

APPENDIX B

MANPOWER STUDIES AND STATISTICAL REPORTS

The numbered manpower studies and statistical reports listed in Tables 1 and 2 are described in this appendix. These reports, published by federal agencies and private organizations, have been determined by OCR to be useful sources of availability statistics. Reports published by state governments and local organizations could not possibly be included in a handbook of this size. However, each contractor should record in this appendix any such reports he discovers and reference them in Tables 1 and 2.

APPENDIX B

MANPOWER STUDIES AND STATISTICAL REPORTS

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
1	Summary Data on Vocational Education, FY-1972	Contains a list of the number of enrolees (totalling 11,602,144) in vocational industrial programs including 146 specific occupations in eight major fields, broken down by sex (p. 12f). Overall statistics are broken down by race and by disadvantaged and handicapped populations. Occupations are identified by DOT number. To use as a local source of manpower, cross-reference with the next two publications listed.	Annual reports by states	Response rate: near 100 percent. The honor system was used for reporting the number of enrollees in "disadvantaged" category.	By request Vo. Ed. No. 1	Bureau of Adult Vocational and Technical Education, Office of Education, Washington, D.C.
2	Directory of Secondary Schools with Occupational Curriculums, Public and Non-Public	Lists schools by geographic area and by type of vocational training offered.	Reports by states	Data on 17,460 schools	OE 73-11409, $4.20	National Center for Educational Statistics Office of Education Washington, D.C.
3	Vocational Education, Directory of Post Secondary Schools with Occupational Programs	Same as above	Reports by states	Data on 8,182 schools	OE 73-11410, $3.95	Same as above
4	Science Resource Studies Highlights, Selected Characteristics of Five Engineering and Scientific Occupational Groups, 1972	Contains selected survey information (national figures) on sex, age, and educational attainment of persons in five engineering and scientific occupational groups: engineers, mathematicians, life scientists, physical scientists, and social scientists.	Derived from 1970 census data	Based on preliminary data which is subject to revision estimates based on sampling rather than on the complete census figures.	By request, Report No. NSF 73-306, July 20, 1973	Division of Science Resource Studies National Science Foundation Washington, D.C.

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
5	Education and Training, Ten Years of Progress	Describes DOL-DHEW/OE manpower training programs. Appendix contains a list of Area Manpower Institutes with addressess, phone numbers, and states served; could be used for recruiting or for training instructors for the disadvantaged. Also contains statistics on the enrollment of MDTA trainees, broken down by race and by sex, thus describing the labor pool.	Enrollment Records of DOL/OE	Enrollment records claim to be complete	$1.25	Bureau of Adult Vocational and Technical Education Division of Manpower Development and Training Office of Education Washington, D.C.
6	Racial and Ethnic Enrollment Data from Institutions of Higher Education	Lists racial and ethnic enrollment in institutions of higher education for full-time students, broken down by the 48 coterminous states and the District of Columbia, in the following: undergraduate schools graduate and professional schools medical schools dental schools law schools total state enrollment	Questionnaire survey	Method of collection determined by each institution.	$1.75	Office for Civil Rights Department of Health, Education, and Welfare Washington, D.C.
7	Chronicle of Higher Education	Lists an average of 100 openings and 20 applicants per issue Total subscribers equal 26,000, including 1,850 college presidents and 4,175 deans.	Voluntary listing	Wide coverage: subscribed to by most colleges and universities.	Provided weekly by subscription, at $20/year.	Chronicle of Higher Education 1717 Massachusetts Avenue, N.W. Washington, D.C. 20036
8	Job Patterns for Minorities and Women in Private Industry, Vol. I and II.	Contains reports from 45,000 employers covering 31 million workers, broken down by sex, race, and ethnic group, in nine occupational categories. Annual data provided on a nationwide basis and broken down separately for SMSAs, states, and industries.	Questionnaire survey	Restricted to employers of 100 or more; 25 percent did not respond.	Unknown	Equal Employment Opportunity Commission 1800 G Street, N.W. Washington, D.C. 20506

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
9	Digest of Educational Statistics, 1972	Table 101: Lists the number of faculty, students, and degrees conferred in institutions attended predominately by Black students, broken down by sex. Table 151: Lists the reasons for working in a job not directly related to degree field, broken down by type of degree, major field of study, and sex.	Questionnaire surveys and census data	Rate of response to surveys: from 80 to 100 percent. Census data is representative of the total national population, but not representative of a specific geographic area.	GPO 1780-01139, $2.35	National Center for Educational Statistics Office of Education Washington, D.C.
10	Current Population Survey Tabulations	Contains current tabulations of population broken down by occupation, sex, and race. Data on the employed and unemployed may be obtained by requesting current annual averages for specific callouts.	Derived from 1970 census data	Representative of national totals but not representative of geographic areas.	By request	Bureau of Labor Statistics Attn: Jack Bregger, Chief Division of Employment and Unemployment Analysis Department of Labor Washington, D.C.
11	Adult Basic Education Program Statistics	Lists the number of students enrolled in basic education programs, broken down by region and by state	Annual reports by states	States differ in ability to differentiate and respond to some specific items, as noted in the report.	OE 73-11413, $.40	National Center for Educational Statistics Office of Education Washington, D.C.
12	Higher Education: Student Enrollment for Advanced Degrees, Fall 1970 summary data	Lists the number of students enrolled, aggregated by national and state totals for areas and 200 fields of study, broken down by sex. Table 102: Contains an historical summary (1869-1969) of faculty, students, and degrees conferred by institutions of higher education, broken down by sex. Table 114: Lists Bachelors, Masters, and doctorate degrees conferred by institutions of higher education, broken down by field of study and by sex.	Questionnaire survey	100 percent response	GPO HE 5.254: 54019-70 Part A, $.55	Same as above

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
		Table 121: Lists technical and semiprofessional awards made by institutions of higher education, in 1969-1970 broken by length and type of curriculums and by sex. Table 122: Lists associate degrees conferred by institutions of higher education from 1965 to 1970, broken down by type of degree and by sex. Table 148: Lists the number and percentage of Whites and Blacks enrolled in the first year of college, broken down by sex.				
13	Higher Education Salaries, 1967-1968	Lists the average and median salaries of instructional staff in institutions of higher education broken down by type of institution, length of contract, and academic work.	Questionnaire survey	Response rate: 80 percent	GPO HE 5.253: 53015-68, $.60	National Center for Educational Statistics Office of Education Washington, D.C.
14	Higher Education Earned Degrees Conferred (Annual report by academic year)	Contains a table of earned degrees conferred. Cumulative totals from 1947, broken down by field of study, degree, and sex, can be used in combination with annual issues after 1965 to estimate labor pool.	Questionnaire survey	Response rate: 100 percent	GPO HE 5.254: 54013-64, -65, -66, -67, -68, -69, 70, -71, $.60	Same as above

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
15	Directory of Academic Programs, Undergraduate and Graduate	Lists the names of heads of departments; and contains student profiles broken down by departments and, within departments, by: number of students number of degrees conferred within one year and five years thesis requirements percentage of Black students	Questionnaire survey	Response rate: 90 percent	Unknown	Peterson's Guideline 228 Alexandria Street Princeton, N.J. 08540
16	Women Political Scientists	Roster of women political scientists.	Roster of members of the American Political Science Association	Unknown	No charge	American Political Science Association 1527 New Hampshire Avenue, N.W. Washington, D.C. 20036
17	Women Historians	Roster of women historians.	Roster of members of the American Historical Association	Unknown	$5.00 contribution requested	American Historical Association 400 A Street, S.E., Washington, D.C. 20003
18	Women Theologians	Roster of women theologians.	Unknown	Unknown	No charge	Boston Theological Institute Women's Placement Service 45 Francis Avenue Cambridge, Massachusetts 02138
19	Women Psychologists	Roster of women members of the American Psychological Association.	1971 survey of members of the American Psychological Association	Only representative of the member population.	No charge	American Psychological Association 1200 17th Street N.W. Washington, D.C. 20036
20	Women Physicists	Roster of women physicists.	Voluntary sign-up by individuals	Unknown	$5.00	American Institute of Physics Placement Service 335 W. 45th Street New York, N.Y. 10017
21	Women Librarians	Roster of women qualified for specialized and administrative library positions.	Survey by the American Library Association	Unknown	No charge	Graduate School of Library Science Attn: Margaret Myers Rutgers University New Brunswick, N.J. 08903
22	Women Lawyers	State-by-state roster of women lawyers.	Compilation by the American Bar Association	Unknown	No charge	Dr. Lee Ellen Ford 336 Hickory Street Butler, Ind. 46721

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
23	Job Opportunities Newsletter	Lists job openings for women in the fields of English, modern foreign languages, women's studies, and administration.	Unknown	Unknown	Unknown	Women's Caucus of the Modern Language Association Attn: Gloria De Sale Skidmore College Saratoga Spring, N.Y. 12866
24	No title	Career Information Clearinghouse Service	Roster of members of the Society of Women Engineers	Only representative of the member population.	No charge	Society of Women Engineers 345 E. 47th Street New York, N.Y. 10017
25	Engineering Manpower Bulletin	Contains data on women engineering graduates and their distribution by specialties.	Unknown	Graduates represent only a part of the available pool.	$1.50	Engineering Manpower Commission 345 E. 47th Street New York, N.Y. 10017
26	Engineering and Technical Enrollments, Fall 1971	Detailed directory of women enrollees.	Unknown	Unknown	$20.00	Same as above
27	Women Architects	Lists female and minority members interested in teaching in schools of architecture	Unknown	Unknown	By request	Association of Collegiate Schools of Architecture 1785 Massachusetts Avenue, N.W. Washington, D.C. 20036
28	Women Architects	Lists names and addresses of women who are or have been students of architecture.	Unknown	Unknown	By request	Alliance of Women in Architecture 18 E. 13th Street New York, N.Y. 10003
29	No title	Lists women academic administrators in higher education (i.e., presidents, deans, vice presidents, and financial or administrative officers).	Unknown	Unknown	Unknown	Institute for College and University Administrators American Council on Education One Dupont Circle Washington, D.C. 20036

APPENDIX B (CONT.)

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
30	Hospital Manpower Characteristics Survey Pretest Processing Report (HMCS), Feb. 25, 1972	So far, data has only been published for the four cities listed, broken down by either sex, race, age, or job category. The data reports the degree earned and the level of education, broken down by sex, race, and age of the employee; specific job category; main hospital activity by occupation; total years in the occupation and years employed in the hospital; and the pay per hour by specific job category; sex, race, and age of employee.	Sample of five hospitals in four cities: Los Angeles, Dallas, Detroit, and Boston.	Only representative of institutions sampled.	By request	Bureau of Health Manpower Education National Institutes of Health Bethesda, Maryland
31	Impact of the Allied Health Basic Improvement Grant Program on Health Ed. Programs, Contract No. MIH-70-4172 July 31, 1972	Contains enrollment/graduation figures by sex and race (Black/White). Contains the following occupational and educational levels: dental assistant dental hygienist (baccalaureate) dental hygienist (associate) dental lab technician dietician dietary technician medical technologist medical lab technician medical record librarian medical record technician radiologic technologist x-ray technician occupational therapist physical therapist inhalation therapy technician	Survey of institutions awarded basic improvement grants for 1967-1969.	Limited: only 62 percent of institutions responded.	For inspection purposes only; report not published.	Allied Health Manpower Division National Institutes of Health Bethesda, Maryland
32	Minorities in Health Professions	A basic document of information and statistics on minority students and applicants in the profession. Contains 40-50 tables on various minority groups, broken down by professional health area.	Various sources	Uncertain; document currently in production.	By request	Bureau of Health Manpower Education Manpower Resources and Requirements Branch Division of Manpower Intelligence National Institutes of Health Bethesda, Maryland
33	1973 Inventory of Health Occupation Training Programs	The association is in the process of developing a list of directors of allied health programs. These directors will then be asked to identify students by race, sex, etc.	Questionnaire	Uncertain at this time.	In development stage; not yet available.	Association of Schools of Allied Health Professions One Dupont Circle Washington, D.C. 20036

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
34	Journal of the American Medical Association	Lists the following: . Percentage of minority enrollment in United States medical schools, broken down by race and region for 1969 through 1971. (Categories used: "Afro-American", "Mexican-American", and "Oriental".) . Enrollment of Black students by type of school for 1963 through 1971. . Number of Black Americans serving in internship and residencies, broken down by state, specialty, and hospital affiliation. . Number of women physicians in internship positions, in residencies, and on teaching staffs, broken down by state, specialty, and hospital affiliation as of September 1, 1970.	Unknown	Unknown	Unknown	American Medical Association 535 N. Dearborn Street Chicago, Illinois 60610
35	Selected Characteristics of the American Population, 1963, 1967, and 1973 editions	Contains data on age, sex, and specialty of the population, broken down by metropolitan area, state, and SMSA.	Unknown	Unknown	$2.50	American Medical Association Department of Survey Research 535 N. Dearborn Street Chicago, Illinois 60610
36	LPNs: Inventory of Licensed Practical Nurses, 1967	Provides data by sex only. Gives geographic location of licensed practical nurses (LPN) and their field distributions, employment status, and distribution by age.	PHS survey by American Nursing Association and state boards of nursing	Data on 343,000 LPNs	$1.00	Bureau of Health Manpower Education Division of Nursing National Institutes of Health Bethesda, Maryland
37	American Nursing Association, Registered Nurses, 1966	Contains number and percentage of registered nurses, broken down by age, sex, and employment status.	Unknown	Unknown	Unknown	American Nursing Association 2420 Pershing Road Kansas City, Missouri

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
38	Report on enrollment in schools and colleges of pharmacy, first semester, term, or quarter, 1972-73, Vol. 37, Feb. 1, 1973	Lists the number of students belonging to racial minorities and enrolled in the final three years of curriculum in schools and colleges of pharmacy for 1971-1972. These are broken down by race ("Black," "Chicaro," "American Indian," and "Other") and by sex.	Reports of all 73 schools in the United States	100 percent accuracy	No charge	American Association of Colleges of Pharmacy American Journal of Pharmaceutical Education 8121 Georgia Avenue Suite 800 Silver Spring, Maryland 20910
39	Ophthalmology Manpower: Characteristics of Clinical Practice, United States, 1968	Contains limited data on the volume and nature of clinical activities for the United States, broken down by sex.	Questionnaire survey	Response rate: 92.7 percent	No. (HSM) 73-1802, $.80	National Center for Health Statistics Department of Health, Education and Welfare Rockville, Maryland
40	Ophthalmology Manpower, a General Profile, United States, 1968	Contains limited data on selected demographic and professional characteristics of active and inactive ophthalmologists, broken down by sex.	Questionnaire survey	Response rate: 92.7 percent	No. (HSM) 73-1800, $1.25	Same as above
41	Ophthalmology Manpower: Utilization of Supplementary Personnel, United States, 1968	Contains limited data on the utilization of eight categories of supplementary personnel by ophthalmologists, broken down by sex.	Questionnaire survey	Response rate: 92.7 percent	No. (HSM) 73-1804, $.75	Same as above
42	Journal of the American Medical Association, Vol. 210, No. 1, Oct. 6, 1969	Article in this issue of the journal lists Black physicians by number, age, sex, output/school, and specialty. The last study before this was conducted in 1944. The National Medical Association is currently doing another study of Black physicians.	Unknown	Unknown	Unknown	American Medical Association 535 N. Dearborn Street Chicago, Illinois 60610

APPENDIX B (CONT.)

Ref. No.	Title of Publication	Description of Contents	Collection Technique	Statistical Validity	Availability/ Cost	Source
43	Report of degrees conferred by schools and colleges of pharmacy in the academic year 1971-72, Vol. 37., Feb. 1973	Lists degrees conferred by all schools and colleges of pharmacy, broken down by school, race, and sex.	Reports of all the schools in United States	100 percent accuracy	No charge	American Journal of Pharmaceutical Education American Association of Colleges of Pharmacy 8121 Georgia Avenue Suite 800 Silver Spring, Md. 20910
44	Graduate enrollment data, Sept. 1972, and Graduate study in member colleges, 1973-74, Vol. 37., Feb. 1973	Lists the number and subject area of students in Masters and doctoral programs, broken down by school, race, and sex.	Same as above	Same as above	Same as above	Same as above
45	Vocational and Technical Education, Selected Statistical Tables, FY 1972	Contains selected enrollment statistics all distributed by state. Tables 44 to 51 provide enrollment breakdown in intermediate occupations by sex. Table 73 provides enrollment in all vocational education programs by racial/ethnic group.	Annual reports by states	Response rate: near 100 percent	By request, Vo. Ed. No. III.	Bureau of Adult Vocational and Technical Education Office of Education Washington, D.C.
46	American Science Manpower, 1970. NSF 71-45	A report of the national register of scientific and technical personnel. Tables A-60 through A-67 list data by sex for 15 scientific and technical fields.	Mail questionnaire	313,000 respondents	GPO 3800-0111, $2.00	National Science Foundation 1800 G Street, N.W. Washington, D.C. 20550
47	Study of Employment of Women in Federal Government, 1971	Data presented on world-wide full-time employment of white-collar federal employees. Figures for number of women (no minority data provided) in standard occupations of the U.S. Civil Service Commission.	CSC survey	98 percent of federal work force included	GPO 0600-00685 $2.35	Manpower Statistics Division U.S. Civil Service Commission 1900 E Street, N.W. Washington, D.C. 20415
48	System of Outputs for EEO from the Central Personnel Data File (CPDF)	Format 2, "Occupational Overview" lists all minority groups by Civil Service Commission occupational group salary skill level, etc. Reports by federal agency, states and SMSAs.	CSC central files	100 percent accuracy	By request.	Same For further information contact: Dr. Phillip Schneider Chief, Manpower Statistics Division Bureau of Information Systems Room 6416

APPENDIX C

CASE STUDIES

The following case studies are hypothetical examples intended to illustrate what is required of contractors in performing labor market availability analyses for women and minorities and to demonstrate use of the flowchart and procedures explained in Section V for conducting the analyses. The cases concern the activities of Far Eastern State University, located in Richmond, Virginia, in conducting availability analyses for professors of international relations, comptrollers, and radiologic technicians (the latter for the university hospital). All reports and figures used are actual. Completed availability analysis work sheets follow each case study.

CASE 1: PROFESSOR OF INTERNATIONAL RELATIONS

Far Eastern needed to determine the availability of professors of international relations for its school of political science. Following the numbered tasks outlined in Section V and Figure 3, Far Eastern determined the availability as follows:

1. Determine detailed occupational classification of the job. Using the taxonomy of occupations in Table 1, "International relations" was found as a detailed occupation under "PROFESSIONALS, INSTRUCTORS, Social sciences." "International relations" was recorded at the top of column 4 on the sample work sheet.

2. Is labor market national or local? Far Eastern decided that whenever it needed a professor, it would recruit throughout the country in order to attract top personnel. Therefore, the labor market was national.

3. Is occupation listed in census report PC(2)-7A? By looking in the column titled "U.S. Census Reports" in Table 1, Far Eastern saw that "International relations" was not an occupation included in census report PC(2)-7A. Since census data was not useful, Far Eastern realized it would have to use other sources of data, as specified in the instructions for Task 3.

4. Obtain data from other sources. In Table 1, under "Other Manpower Studies and Statistical Reports," Far Eastern found that two reports (referenced as 12 and 14) were listed as other sources of availability data for "International relations." Looking in Appendix B, Far Eastern realized that Ref. No. 12, Higher Education: Student Enrollment for Advanced Degrees, Fall 1970 Summary Data, would probably not be too useful because it only contains data on enrollments. However, Ref. No. 14, Higher Education Earned Degrees Conferred, looked like it would be a

very useful report since it would indicate the actual number of students who had received degrees. A copy of the latest report was ordered from the Office of Education National Center for Educational Statistics. At the same time, Far Eastern sent a letter to the American Political Science Association (APSA) requesting data on women and minority professors of international relations.

5. Are data useful? Far Eastern received a copy of Earned Degrees Conferred: 1970-71 from the Office of Education and determined that the report was quite useful because it has data on degrees conferred in international relations broken down by sex. Unfortunately, the APSA replied that the only applicable data it had was a roster of women political scientists, which included neither a specialty nor minority profile.

The report on earned degrees conferred indicated that there were a total of 2,061 degrees awarded in international relations in 1970-71, 1,568 to men and 493 to women. These data were recorded under column 4 of the work sheet. Because the answer to Task 5 was "yes," Far Eastern proceeded to Task 7. as specified in the instructions.

6. (Does not apply.)

7. Are sex and minority groups given? The answer to this decision was "no" because the data on "International relations" did not give a minority group breakdown. Far Eastern thus proceeded to Task 8, as specified in the instructions.

8. Use census data for next larger occupational classification. Far Eastern determined the minority distribution for the total men and women by applying the distribution for the next larger occupational classification found in census data. Table 1 showed that the next occupational classification larger than "International relations" in the census is "Social sciences." A copy of report PC(2)-7A, Census of Population 1970: Occupational Characteristics, was obtained from the university library and in Table 2, Race and Spanish Origin of the Experienced Civilian Labor Force, by Detailed Occupation and Sex for the United States: 1970, "Social scientists" was located under "PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS." The table shows that of the 92,054 male social scientists, in the country there are 2,145 Blacks, 1,675 Spanish Americans, 675 Asian Americans, 142 American Indians, and 87,417 others. Of the 21,034 females, there are 1,328 Blacks, 361 Spanish Americans, 210 Asian Americans, no American Indians, and 19,135 others. (The number of Asian Americans is arrived at by totaling the number of Japanese, Chinese, and Filipino.) "Social scientists" was recorded at the top of column 3 on the work sheet and these data recorded under it for the defined labor market.

The figures for males and females in column 4 were then broken down by race by multiplying each one times the proportion of each minority group

recorded in column 3. All fractions are rounded upward. The computations for males were as follows:

$$1{,}568 \times \frac{2{,}145}{92{,}054} = 37 \text{ Blacks}$$

$$1{,}568 \times \frac{1{,}675}{92{,}054} = 29 \text{ Spanish Americans}$$

$$1{,}568 \times \frac{675}{92{,}054} = 12 \text{ Asian Americans}$$

$$1{,}568 \times \frac{142}{92{,}054} = 3 \text{ American Indians}$$

$$1{,}568 \times \frac{87{,}417}{92{,}054} = 1{,}490 \text{ Others}$$

The computations for females were as follows:

$$493 \times \frac{1{,}328}{21{,}034} = 32 \text{ Blacks}$$

$$493 \times \frac{361}{21{,}034} = 9 \text{ Spanish Americans}$$

$$493 \times \frac{210}{21{,}034} = 5 \text{ Asian Americans}$$

$$493 \times \frac{19{,}135}{21{,}034} = 449 \text{ Others}$$

The numbers obtained for each minority group were recorded in column 4 under the totals for each sex.

9 through 19. (These tasks do not apply to this case because they deal only with occupations in a local labor market.)

20. Compute preliminary percentages. The numbers in each cell under column 4 were expressed as a percentage of the overall total (both sexes) and entered on the worksheet. All figures were rounded to the nearest percentage and a minimum value of at least one percent was used.

21. Make necessary adjustments for biases and omissions in data. Far Eastern realized that the data it had obtained on percentages of women and minorities probably contained some biases and omissions because: (1) the number of minorities had been "approximated" using data from a broader occupational group; and (2) the number of new degrees awarded for any given year or years does not necessarily coincide with the number of those available in the labor market because many people in the political science profession complete their degrees after having secured a position.

Consequently, Far Eastern decided that it should use some other source of data as a cross-check to see if any adjustments to the preliminary percentages were required. To do this, Far Eastern used a copy of American Science Manpower 1970, published by the National Science Foundation (Ref. No. 46 in Appendix B). The report does not provide minority data or data for international relations but does have sex figures for "political scientists," within which international relations is a designated specialty. According to the report, there are 6,493 political scientists in the United States; 5,862 (or 90 percent) of which are male and 631 (or 10 percent) are female. "Political scientists" was entered at the top of column 2 on the work sheet and these data were recorded in the proper cells.

Far Eastern saw that the 10 percent figure for females was somewhat below the preliminary percentage (24 percent) listed in column 4. In the same fashion, the 90 percent figure for males was in disagreement with the preliminary percentage (76 percent). Far Eastern did realize, however, that it was comparing figures on the universe of political scientists with figures on the universe of people in international relations. After studying these discrepancies, Far Eastern concluded that the percentage of women probably should be higher than the National Science Foundation's 10 percent because it was a reflection of the status quo, i.e., those currently employed, whereas the 24 percent from the report of degrees conferred was probably more indicative of future trends. In addition, the NSF data is from voluntary surveys and therefore probably fails to reflect the universe accurately. Consequently, Far Eastern decided to at least split the difference between the two sets of figures, and the preliminary 24 percent. breakdown for females was thus decreased by seven percentage points to 17 percent and the 76 percent breakdown for males was increased by seven percentage points to 83 percent. The preliminary percentages of all female minorities were then adjusted by decreasing them by 29 percent (7 percent/24 percent), and the preliminary percentages of all male minorities were adjusted by increasing them by 9 percent (7 percent/76 percent). These adjusted figures were recorded in column 5 on the work sheet.

Far Eastern had thus completed its availability analysis for professors of international relations. The figures obtained were not necessarily exact indicators of the percentages of women and minorities in the available labor market, but were nonetheless the most precise that could be derived from the data available. The final figures used were: 83 percent total males, 2 percent Black males, 1 percent Spanish American males, 1 percent Asian American males, 1 percent American Indian males, 78 percent other males, 17 percent total females, 1 percent Black females, 1 percent Spanish American females, 1 percent Asian American females, and 15 percent other females.

BEST COPY AVAILABLE

AVAILABILITY ANALYSIS WORK SHEET FOR CASE 1

Labor Market		Occupation									
		(1) Major Occupation		(2) Other Intermediate Occupation: Political scientists		(3) Intermediate Occupation: Social scientists		(4) Detailed Occupation: International relations ← TASK 1		(5) Adjusted Availability	
		No.	%	No.	%	No.	%	No.	%	%	
Defined Labor Market	TOTAL (both sexes)		100	6,493	100	112,274	100	2,061	100		
	Total Male			5,862	90	92,054		1,568	76	83	
	Black					2,145		37	2	2	
	Spanish American					1,675	TASK 5	29	1	1	
	Asian American					675		12	1	1	
	American Indian					142		3	1	1	
	Other	TASK 21 →				87,417		1,490	72	78	
	Total Female			631	10	21,034		493	24	17	
	Black					1,328	TASK 5	32	2	1	
	Spanish American					361		9	1	1	
	Asian American					210		5	1	1	
	American Indian					-		-	-	-	
	Other					19,135		449	22	15	
Next Larger Labor Market	TOTAL (both sexes)		100		100		100		100		
	Total Male										
	Black										
	Spanish American										
	Asian American										
	American Indian										
	Other										
	Total Female										
	Black										
	Spanish American										
	Asian American										
	American Indian										
	Other										

TASK 8 ↑ TASK 20 ↑ TASK 21 ↑

Note: Totals will not always add due to rounding, overlaps in data, etc.

CASE 2: UNIVERSITY COMPTROLLER

In preparing its affirmative action plan, Far Eastern also needed to determine the availability of qualified comptrollers. Far Eastern had made a decision that the minimum qualification for a comptroller should be previous experience as a college comptroller; therefore, the available pool would be current and past college comptrollers (as opposed to all comptrollers in any industry).

1. Determine detailed occupational classification of the job. Using the taxonomy of occupations in Table 1, "Comptroller/treasurers" was found under "EXECUTIVES, ADMINISTRATORS, MANAGERS." This is a detailed occupation because it contains no subdivisions of occupations below it. "Comptroller" was recorded at the top of column 4 on the sample work sheet which follows.

2. Is labor market national or local? Far Eastern determined that the labor market for college comptrollers would be national because it would certainly recruit nationwide were one ever needed.

3. Is occupation listed in census report PC(2)-7A? Table 1 indicates that "Comptrollers/treasurers" is not listed in census report PC(2)-7A, so Far Eastern had to obtain data from other sources.

4. Obtain data from other sources. Table 1 indicates that the Chronicle of Higher Education (shown as Ref. No. 7, which is described in the list of reports in Appendix B) is a source of other data on comptrollers which might be of use. Far Eastern began looking through their copies of the Chronicle and at the same time made calls to a couple of national organizations, one representing colleges and the other representing college administrators, to see if they had any data on the availability of women and minority comptrollers. The organization representing college administrators said they would send a copy of a report that they had prepared on minorities.

5. Are data useful? Far Eastern scanned the classified section in a few back issues of the Chronicle of Higher Education for "position wanted" ads. However, the data contained in the ads were not very useful for availability purposes because the people placing the ads represented only a small portion of all available college comptrollers. It was decided that the Chronicle could be used as a recruiting aid to hire someone but some other source would have to be used to determine the availability of women and minority comptrollers.

Far Eastern then reviewed the minority report sent to it by the organization representing college administrators to judge its usefulness. The report was not useful because it only had information on presidents and deans. Since none of the data Far Eastern could locate were useful, it used census data for the next larger occupational classification.

6. Use census data for next larger occupational classification. Looking in Table 1, Far Eastern saw that the next occupational classification larger than "Comptrollers" in the census is "EXECUTIVES, ADMINISTRATORS, MANAGERS." A copy of report PC(2)-7A was obtained from the college library and in Table 2, Race and Spanish Origin of the Experienced Civilian Labor Force, by Detailed Occupation and Sex, for the United States: 1970, "School Administrators, college" was located under "MANAGERS AND ADMINISTRATORS." The table shows a total of 38,931 college administrators in the United States, 30,048 male and 8,883 female. Of the males, there are 1,295 Blacks, 226 Spanish Americans, 170 Asian Americans, 82 American Indians, and 28,275 others. Of the females, there are 520 Blacks, no Spanish Americans, 64 Asian Americans, 19 American Indians, and 8,280 others. (The number of Asian Americans is arrived at by totalling the number of Japanese, Chinese, and Filipino.) "School administrator" was written at the top of column 3 on the work sheet, and these data were recorded.

20. Compute preliminary percentages. All of the numbers were expressed as a percentage of the overall total (both sexes) and entered on the work sheet.

21. Make necessary adjustments for biases and omissions in data. Far Eastern decided to cross-check the census figures with another source of data to see if there were any omissions since the census data was three years old and the availability of college administrators could have changed. Far Eastern could not find any national data for comparison purposes that was more recent than 1970, but it did have a state labor department report just published that had 1973 data on college and university employees in the state. Far Eastern decided to compare the census data with data collected by the state. The state report showed that 25 percent of the college administrators in the state were women. Since this figure compared very favorably with the census figure of 23 percent (see work sheet), Far Eastern concluded that the availability of women and minorities had not changed drastically in the past three years and therefore it was not necessary to make any adjustments in the census data.

Far Eastern had thus completed its availability analysis for college comptrollers and it used the data obtained to define its affirmative action plan. The data obtained on college administrators would also be useful to Far Eastern when it had to determine the availability for other detailed occupations within that occupational grouping.

AVAILABILITY ANALYSIS WORK SHEET FOR CASE 2

Labor Market		Occupation								(5) Adjusted Availability
		(1) Major Occupation		(2) Other Intermediate Occupation		(3) Intermediate Occupation		(4) Detailed Occupation		
				TASK 19 →		School Administrator		Comptroller		← TASK 1
		No.	%	No.	%	No.	%	No.	%	%
Defined Labor Market	TOTAL (both sexes)		100		100	38,931	100		100	
	Total Male					30,048	77			
	Black					1,295	3			
	Spanish American					226	1			
	Asian American					170	1			
	American Indian					82	1			
	Other			TASK 19 →		28,275	73	← TASK 20		
	Total Female					8,883	23			
	Black					520	1			
	Spanish American					-	-			
	Asian American					64	1			
	American Indian					19	1			
	Other					8,280	21			
Next Larger Labor Market	TOTAL (both sexes)		100		100		100		100	
	Total Male									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									
	Total Female									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									

Note: Totals will not always add due to rounding, overlaps in data, etc.

CASE 3: RADIOLOGIC TECHNICIAN

Far Eastern also performed a labor market availability analysis for junior X-ray technicians at the university hospital as part of its affirmative action program. To do so, it first had to determine the availability of all women and minority X-ray technicians because this is the occupational pool from which a junior technician would be found. The availability was determined as follows:

1. Determine detailed occupational classification of the job. Using the taxonomy of occupations in Table 2, Far Eastern looked under the major occupation "TECHNICIANS," intermediate occupation "Radiologic services personnel," and found the detailed occupation "Radiologic technologists/technicians." It was thus determined that X-ray technician is not an occupation per se but falls under the detailed occupation of radiologic technologists/technicians. The occupation was recorded at the top of column 4 on the sample work sheet which follows.

2. Is labor market national or local? Given the general salary level of radiologic technicians, Far Eastern decided there probably was no national market for them. Besides, there had always been an abundance of local job applications for radiologic technicians so Far Eastern determined the labor market to be local. The geographic limits of the local labor market were then determined (Task 9)..

3 through 8. (These tasks are not required for this case because they deal only with occupations in a national labor market.)

9. Determine geographic limits of local labor market. To determine the proper geographic area in which to recruit, and thereby the area in which it would conduct its availability analysis for women and minorities, Far Eastern reviewed the home addresses of all its radiologic technicians and applicants for the job. It was discovered that almost every one of them lived within the city limits of Richmond. Far Eastern thus determined that the city would be the labor area from which to recruit. It realized that a couple of its radiologic technicians and applicants lived outside the city limits, but because most junior-level personnel enter the occupation at a fairly low pay level, Far Eastern did not feel that these people would be able to afford to commute from beyond the city limits.

10. Is detailed occupation listed in census report PC(1)-C or -D? Table 2 indicates that radiologic technicians are listed in census report PC(1)-D, Detailed Characteristics. Therefore, Far Eastern ordered a copy of PC(1)-D and PC(1)-C, General Social and Economic Characteristics, from the U.S. Bureau of the Census. Far Eastern specified that it needed the reports for Virginia and therefore received copies of PC(1)-D48 and PC(1)-C48 (Census numbers the reports by state and Virginia is state 48.) Far Eastern then reviewed the reports for content (starting with Task 14).

11 through 13. (Do not apply to this case.)

14. Is data given for local market? Far Eastern discovered that neither census report PC(1)-D or PC(1)-C had data on radiologic technicians for the city of Richmond.

15. Use data for next larger labor market. Since the next larger labor market that Far Eastern could recruit in is the Richmond SMSA, data for it was obtained. Table 171, Detailed Occupation of Employed Persons by Residence, Race and Sex: 1970, in report PC(1)-D gives data on radiologic technicians. The information was copied on the work sheet under column 4 for the next larger labor market.

16. Is sex distribution given? Since the answer to this question was yes, Far Eastern moved on to Task 18.

17. (Does not apply to this case.)

18. Are the numbers of minorities given? Table 171 in PC(1)-D does not show the number of minorities. Therefore, Far Eastern looked for census figures in the next larger occupational classification.

19. Use census figures for next larger occupational classification. Far Eastern discovered that Tables 122, 127, and 132 in PC(1)-C give occupational data for "Total," "Negro," and "Spanish Language" respectively for the city of Richmond. They give figures for "Health workers" under "PROFESSIONAL, TECHNICAL and KINDRED WORKERS." "Health workers" was recorded on the work sheet at the top of column 2 because it is an "other" intermediate occupation given by census (the intermediate occupation is health technologists and technicians). All pertinent information was recorded on the work sheet in column 2 for the defined labor market.

Each sex figure in column 4 for the next larger labor market was then adjusted for race by multiplying it times the proportion of each minority group in column 2. The computations for males were as follows:

$$34 \times \frac{141}{152} = 32 \text{ Blacks}$$

$$34 \times \frac{11}{152} = 3 \text{ Spanish Americans}$$

The computation for females were as follows:

$$144 \times \frac{474}{1,799} = 38 \text{ Blacks}$$

$$144 \times \frac{10}{1,799} = 1 \text{ Spanish American}$$

$$144 \times \frac{1,315}{1,799} = 105 \text{ Others}$$

The numbers obtained for each minority group were recorded in column 4 for the next larger labor market.

20. Compute preliminary percentages. The numbers in each cell in column 4 were expressed as a percentage of the overall total (both sexes) and recorded in column 4 for the defined labor market. These figures were the preliminary percentages for availability of radiologic technicians in the city of Richmond.

21. Make necessary adjustments for biases or omissions in data. Far Eastern wondered how accurate the derived census data was. Therefore, as a cross-check on the data to see if it had any biases, Far Eastern used a copy of Vocational and Technical Education Selected Statistical Tables FY 1972, published by the U.S. Office of Education (Ref. No. 45 in Appendix B) to see what the percentages of women and minorities were in health vocational training because most junior-level employees would be selected from this population. The report does not give a minority breakdown for health training but does show sex distribution by state. It indicates that 89 percent of the enrollment in health occupations in Virginia is female. This figure was very close to the census figure of 92 percent female for health workers (1,799/1,951 = 92 percent). Because the census data appeared to be quite accurate for health workers, Far Eastern believed that the figures derived from it for radiologic technicians were also probably quite accurate and no biases or omissions existed.

Far Eastern had thus completed its availability analysis for radiologic technicians. The final figures used were: 19 percent total male, 18 percent Black males, 2 percent Spanish American males, 81 percent total female, 21 percent Black females, 1 percent Spanish American females, and 59 percent other females.

AVAILABILITY ANALYSIS WORK SHEET FOR CASE 3

Labor Market		Occupation								(5) Adjusted Availability
		(1) Major Occupation		(2) Other Intermediate Occupation — Health workers		(3) Intermediate Occupation		(4) Detailed Occupation — Radiologic technicians ← TASK 1		
		No.	%	No.	%	No.	%	No.	%	%
Defined Labor Market	TOTAL (both sexes)		100	1,951	100		100		100	
	Total Male			152					19	
	Black			141					18	
	Spanish American			11					2	
	Asian American									
	American Indian					← TASK 19				
	Other									
	Total Female			1,799					81	← TASK 20
	Black			474					21	
	Spanish American			10					1	
	Asian American									
	American Indian									
	Other			1,315					59	
Next Larger Labor Market	TOTAL (both sexes)		100		100		100	178	100	
	Total Male							34		
	Black							32		
	Spanish American							3		
	Asian American									TASK 15
	American Indian									
	Other					TASK 19				
	Total Female							144		
	Black							38		
	Spanish American							1		
	Asian American									
	American Indian									
	Other							105		

Note: Totals will not always add due to rounding, overlaps in data, etc.

CASE 4: STATIONARY ENGINEERS

In addition, Far Eastern University needed to know the availability of stationary engineers (power plant operators and maintenance men). Following the numbered tasks outlined in Section V and Figure 3, the analysis was conducted in the following manner.

1. Determine detailed occupational classification of the job. Using the taxonomy of occupations in Table 1, "Stationary engineers" was found as a detailed occupation under "Craftsmen." "Stationary engineers" was recorded on the top of column 4 of the sample work sheet which follows.

2. Is labor market national or local? Far Eastern decided that the labor market for stationary engineers was local. Three factors contributed to this assumption: the characteristics of the job, the pay rate for stationary engineers, and the local newspaper help-wanted advertising for stationary engineers and related occupations. The geographic limits of the local labor market were then determined (Task 9).

3 through 8. (Do not apply to this case.)

9. Determine the geographic limit of local labor market. To determine the proper geographic area in which to recruit and for which it must conduct an availability analysis for women and minorities, Far Eastern reviewed the home addresses of the currently employed stationary engineers and other occupations which have similar wage levels to determine commuting behavior. The university decided that the salary was high enough to attract stationary engineers from all points within the Richmond SMSA, so that area was chosen as the local labor market.

10. Is detailed occupation listed in Census Report PC(1)-C or -D? Table 1 indicates that stationary engineers are listed in Census Report PC(1)-D, 1970 Census of Population, Detailed Characteristics: Virginia. Far Eastern ordered a copy of PC(1)-D from the U.S. Bureau of the Census. Far Eastern specified that it needed the reports for Virginia and received a copy of PC(1)-D48. (Census numbers the reports by state and Virginia is state 48.)

11 through 13. (Do not apply to this case.)

14. Is data given for local market? The data contained in Census Report PC(1)-D48, 1970 Census of Population, Detailed Characteristics: Virginia, on stationary engineers in Table 182, "Occupation of the Experienced Civilian Labor Force by Race and Sex," had sufficient detail to be entered into column 4 of the worksheet. In the Richmond SMSA, 26 of the 347 total male stationary engineers were Black. There were no female stationary engineers in the Richmond SMSA.

15. (Does not apply to this case.)

16. Is sex distribution given? The sex distribution contained in Census Report PC(1)-D48, Table 172, was entered on the work sheet.

17. (Does not apply to this case.)

18. Are the numbers of minorities given? The numbers of minorities were given in Census Report PC(1)-D48, Table 172, and entered on the work sheet.

19. (Does not apply to this case.)

20. Compute preliminary percentages. The percentages were computed in the following manner:

$$\text{percentage of Black male stationary engineers} = \frac{\text{number of Black male stationary engineers}}{\text{total number of stationary engineers}}$$

$$8 \text{ percent} = \frac{26}{347}$$

$$\text{percentage of other male stationary engineers} = \frac{\text{number of other male stationary engineers}}{\text{total number of stationary engineers}}$$

$$93 \text{ percent} = \frac{321}{347}$$

The percentages were then entered into the appropriate blocks in column 4 on the work sheet.

21. Make necessary adjustments for biases and omissions in the data. When conducting its availability analysis, Far Eastern obtained another source for labor market data in Richmond. The data was contained in a State of Virginia publication for 1970.[1] Data was not presented for stationary engineers, but race and sex data for the next higher occupational class, craftsmen, was available. The following data was shown for craftsmen:

[1]The data used in the example for the State of Virginia does not exist and is for illustrative purposes only.

Males	Number	Percent
Black	221	3
Other[1]	6,743	97
Total	6,964	100

Far Eastern realized that there were conflicts between the census and state data but felt for the following reasons that the census data was more accurate:

- The census enumerated stationary engineers while the state enumerated a higher level occupational grouping, craftsmen.
- Both labor force counts were based on surveys and, therefore, subject to sampling bias. The census sampling techniques were felt to reflect a more accurate picture of the Richmond SMSA.
- The census contained persons who had worked as stationary engineers in the past ten years while the state report contained only those persons who were currently employed as stationary engineers.

Far Eastern compared the census data and the state data and noticed a discrepancy. The census showed percentages of 8 and 93 for Black and other stationary engineers, respectively. The state showed a lower figure for Blacks of 3 percent and a higher figure of 97 percent for other male stationary engineers. Although Far Eastern felt that the census figures were more accurate, an adjustment was made to improve the quality of the census data. The Far Eastern analyst felt that 25 percent of the difference between the state and census figures should be added/subtracted to the census figures. The Far Eastern analyst then proceeded with the adjustment calculations as follows:

A. Enter the State of Virginia data into column 2 on the work sheet.

B. Construct a table to do the necessary calculations.

---

[1] Includes White

Adjustment Calculation Table
(All Values Rounded)

	All Others (%)	Black (%)
B.1: Stationary engineers listed by the census	97	8
B.2: Craftsmen listed by the State of Virginia	93	3
B.3: B.1 minus B.2	4	5
B.4: B.3 times .25	1	1
B.5: B.4 adjustment to B.1	96	7

C. The adjusted figures for stationary engineers of 96 percent for others and 7 percent for Blacks were entered in column 5 of the work sheet and the availability analysis was completed.

AVAILABILITY ANALYSIS WORK SHEET FOR CASE 4

Labor Market		Occupation								(5) Adjusted Availability
		(1) Major Occupation		(2) Other Intermediate Occupation		(3) Intermediate Occupation: Craftsmen		(4) Detailed Occupation: Stationary engineer ← TASK 1		
		No.	%	No.	%	No.	%	No.	%	%
Defined Labor Market	TOTAL (both sexes)		100		100	6,964	100	347	100	
	Total Male					6,964	100	347	100	
	Black					221	3	26	8	7
	Spanish American									
	Asian American									
	American Indian									
	Other					6,743	97	321	93	96
	Total Female					0	0	0	0	
	Black									TASK 21
	Spanish American									
	Asian American									
	American Indian									
	Other									
Next Larger Labor Market	TOTAL (both sexes)		100		100		100		100	
	Total Male									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									
	Total Female									
	Black									
	Spanish American									
	Asian American									
	American Indian									
	Other									

TASK 21 | TASK 16 & 18 | TASK 20

Note: Totals will not always add due to rounding, overlaps in data, etc.

* U. S. GOVERNMENT PRINTING OFFICE : 1974 733-191/2173